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Can Fair Value Accounting Create a Cognitive Bias? The Effects of Recognized Level 3 Fair Value on Manager Selling Decisions

A dissertation proposal submitted in partial fulfillment of the requirements for the degree of Doctoral of Philosophy in Business at Virginia Commonwealth University.

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Table of Contents

List of Tables

List of Figures

Abstract

CAN FAIR VALUE ACCOUNTING CREATE A COGNITIVE BIAS?
THE EFFECTS OF RECOGNIZED LEVEL 3 FAIR VALUE ON MANAGER SELLING DECISIONS

By Karen Y. Green, Ph.D.

A thesis (or dissertation) submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2015

Major Directors: Benson Wier, Dean's Scholar Professor of Accounting, and Alisa Brink, Associate Professor of Accounting

This study examines the effects of the discretion allowed in fair value accounting on manager selling decisions of Level 3 fair value assets and liabilities. Grounded in motivated reasoning and prospect theory, the discretion permitted for Level 3 fair value assets and liabilities is predicted to have behavioral consequences. The study employs a 2 X 2 between-participant design, manipulating a conservative level of the discretion used to ascertain the fair value (more or less conservative) and the volatility of the historically recognized fair value (low or high). Both graduate students and accounting professionals were asked to read a case scenario and make selling decisions regarding a pool of Level 3 fair value assets purchased six quarters ago. The results indicate that the discretion of the conservative level affects the asking price although the volatility of historically recognized fair values does not significantly influence accounting professionals' selling choices. In a comparative analysis, as volatility increases, the

difference in the asking price increases between the graduate student sample and the professional sample. Additionally, this study provides support that discretion of the conservative level does not affect the likelihood to sell the security, but rather affects the asking price and the lowest price willing to accept if participants were to sell the Level 3 fair value security. These findings contribute to the fair value accounting literature by providing new insights on the effects fair value discretion has on manager decision-making as well as contributing evidence to the fair value accounting relevance debate.

I. INTRODUCTION

Accounting academics and practitioners have been debating the reliability and relevance of fair value accounting. According to Financial Accounting Standards, fair value accounting, often referred to as mark-to-market occurs when a firm revalues assets and liabilities based on an exit price (FAS 157). Advocates contend that fair value provides valuable and timely information to financial statement users by increasing transparency that aid in assessing firm value (CFA 2008). In contrast, opponents argue that fair value is transitory because once the asset or liability is traded, the related accounting entries are reversed. Thus, fair value may provide misleading and unreliable information (ABA 2009). In particular, Level 3 fair value assets and liabilities have no observable inputs and are valued by managers' assumptions, thus the fair value is subjective (Zyla 2013). This study contends that the discretion afforded by accounting standards in valuing Level 3 fair value assets and liabilities creates a bias in managerial decision-making. Specifically, this study examines whether the assumptions used in determining the recognized Level 3 fair value of assets and liabilities subsequently influences managers' selling decisions of the Level 3 fair value assets and liabilities.

Level 3 fair values are unique in that subjective assumptions that are necessary to arrive at the fair value are based on unobservable inputs. According to the FASB codification glossary, unobservable inputs are defined as "market data that are not available and that are developed using the best information available about the assumptions that market participants would use

when pricing the asset or liability" (FASB 2014: 820-10-20). Depending on the valuation method selected, discretion can include the expected life of the asset or liability, the cash discount rate, and risk return rates (Zyla 2013). This discretion can affect financial statements. For example, Inco Ltd. and Enron used discretion allowed with fair value accounting to inflate the value of assets on the balance sheet, which in turn suggests that the firms had greater economic benefit than their operations indicated (Hilton and O'Brien 2008; Benston 2006).

Prior literature has established that factors such as earnings management (Dechow and Shakespear 2009; Dechow, Myers and Shakespear 2010), optimism (Kedia and Philippon 2009), national culture (Ball, Kothari, and Robin 2000), fear of litigation (Lobo and Zhou 2006), and auditor compliance (Milbradt 2012) influence the recognized fair value. However, limited research has examined how managerial behavioral effects prior to recognizing fair value (Chen, Tan, and Wang 2013). Furthermore, research has yet to investigate the implications discretion has on managers' selling choices of Level 3 fair value securities, which can amount to millions of U.S. dollars in investments.[1] Therefore, this study can provide useful information not only to directors of firms that invest in Level 3 fair value securities but also to regulators and financial analysts.

Using experimental methodology, this study explores the effects of the valuation and the historical pattern of the recognized fair values on managers' selling decisions.[2] The dependent variables examine managers' selling choices and include managers' likelihood of selling, the requested asking price, lowest price willing to accept, and likelihood of accepting an offer below fair value. In addition, to avoid sunk cost fallacy and other potential confounds, this study only

[1] For instance, Bank of America has over $44 million invested in Level 3 fair value assets and liabilities.
[2] From an experimental design perspective, since the "true value" of Level 3 assets or liabilities is never known, this study does not attempt to determine an "actual" value of the security.

considers a gain context where the recognized fair value is greater than the historic cost in all treatment conditions.

Motivated reasoning theory contends that individuals will perceive information in a manner that will benefit their desired outcome (Kunda 1990). Thus, managers are likely to view a fair value that results in gains as a valid representation of the true underlying value. Because of the resulting unrealized gains, managers will be motivated to base Level 3 fair value selling decisions at the fair valuation amount. Further, prior literature suggests that when making decisions, individuals use the most recent information available as a reference point (Baucells, Weber, and Welfens, 2011). Accordingly, because this study only investigates a gain setting, managers are expected to rely on the most recent recognized fair value when making Level 3 fair value selling decisions, despite knowledge of the assumptions used to arrive at the recognized fair value. Thus, the expectations are that managers will select a selling price based on the most recent recognized fair value.

When examining manager's likelihood to sell a Level 3 fair value asset or liability, prospect theory (Kahneman and Tversky 1979) suggests that only unrealized gain from the increase of the recognized fair value will motivate managers to be risk averse. In order to preserve the unrealized gain, managers will not sell the asset or liability if the market offers a price less than the most recent recognized fair value.

Moreover, fair value discretion influences the historical volatility pattern of recognized fair value estimates. This volatility generated from fair value assumptions is different from the underlying volatility that the market creates and over which managers or firms have no control. Motivated reasoning (Kunda 1990) argues that historically consistent fair values will create greater confidence that the recognized fair value estimate accurately reflects the underlying value

of the assets and liabilities. In turn, this will cause managers to request an asking price that is greater than the current recognized fair value when the fair value is stable.

Furthermore, prior literature links information volatility and uncertainty (Bourgeois, 1985). Specifically, the research supports that greater volatility historical pattern of recognized fair value will induce managers' uncertainty of the expected future fair value of the asset or liability. When managers have an unrealized gain from the fair value, prospect theory argues that they will be risk averse in gain settings and risk seeking in loss settings, based on their reference point (Sullivan and Kida 1995). Accordingly, in order to avoid risk, this study predicts that managers are not only more likely to sell volatile fair value securities over securities with less volatile past fair values, but also will sell at a lower price.

In summary, this study predicts that in a scenario in which the fair valuation is more (less) conservative, managers are expected to be more (less) likely to sell the Level 3 fair value security. Further, if managers were to sell the security, they will select an asking price that is equivalent to the most recent recognized fair value. In other words, if the firm were to use more (less) conservative fair value recognition policy, the manager will opt for a more (less) conservative asking price. If the market offers a price below the most recently reported fair value, then managers are expected to hold the securities. When low volatility of the historic fair value pattern is present, managers should have an asking price similar to the recognized fair value. However, when high volatility is present, managers will decrease their selling price and increase their willingness to sell.

By exploiting the comparative advantage of a behavioral experiment, this study examines how the assumptions used to arrive at the recognize Level 3 fair values influences subsequent manager selling decisions of those fair value securities. In a 2 x 2 between-subjects design, the amount of recognized fair value (more or less conservative) and the volatility of historically

recognized fair value (low or high) are manipulated. The participants consist of graduate students from a large Mid-Atlantic university and accounting professionals obtained from Qualtrics Panel.

This study finds that the conservatism level (e.g., whether securities have a fair value that is higher or lower) for discretion of Level 3 fair value assets and liabilities affects the asking price when making selling decisions. Thus, fair value is relevant when determining an asking price. Yet, opposite to expectations, the conservatism level does not influence managers' likelihood of selling the Level 3 fair value securities. When securities have a historical fair value pattern that is stable, managers' asking price is similar to the most recent fair value. Conversely, as the volatility of the historical pattern of fair value increases, managers' asking prices increases when more conservative discretion is used. Less conservative discretion also results in increasing the likelihood to sell Level 3 fair value securities below the fair value and more conservative discretion results in greater likelihood to retain the securities rather than to sell below the fair value. Thus, when less conservative discretion is used, managers have a higher asking price but are also willing to accept an offer below the fair value. This study also provides evidence that the historical volatility alone does not statistically affect the asking price, but rather interacts with the conservative level in the professional sample. Lastly, the supplemental analysis shows that both conservative level and volatility influence the amount managers' asking price deviates from the recognized fair value. Overall, this study finds that managers' selling decisions are influenced greater by the conservative discretion level rather than the volatility.

This study makes four primary contributions to the accounting literature. First, and importantly, this study provides evidence that fair value information is relevant when making selling decisions. This study contributes to the fair value literature by demonstrating that fair value discretion influences managers' selling decisions of fair value securities. This influence may cause managers to sell a Level 3 fair value asset or liability at a lower price than if other

discretion levels were used. Through increased knowledge of the behavioral repercussions that fair value discretion has on manager decision-making, directors may be able to align firm objectives and management behaviors by adjusting fair valuation practices. In turn, because fair value adjustments affect financial statements, the discretion used may influence decisions of those who rely on those statements. In summary, through a better understanding of the effects that Level 3 fair value assumptions have on manager decisions, firms may be able to avoid consequences connected with fair value accounting, such as selling at a price below the fair value or refusal to sell over-valued assets and liabilities.

Second, this study adds to the fair value accounting relevance debate by identifying consequences that result when conservative levels are used in the discretion allowed for Level 3 fair value securities selling decisions. Extant scholarship examined the connection between fair value accounting and manager decisions (e.g., Chen, Tan, and Wang 2013; Wang 2010; Plantin, Sapara, and Shin 2008), though no research of which I am aware analyzes the influence of fair valuation on managerial selling decisions.

Third, this study is timely in that the Federal Reserve recently announced that student loans, a Level 3 fair value security, which are purchased by institutions as investments, have a default rate of 11.3% of the $1.16 trillion of outstanding student loans (Shah, 2015). Although since 2010, banks have stopped funding federal student loans (Federal Student Aid: An Office of the U.S. Department of Education, 2015), there are still bank funded federal student loans outstanding that are traded as Level 3 fair value securities. The subjectivity allowed to arrive at the fair value can result in managers incorrectly valuing and retaining these investments in student loans that may default. Through understanding how Level 3 fair value discretion influences manager-selling decisions, firms can implement policies to prevent managers from retaining overvalued securities.

Fourth, this study adds to the discussion of accounting convergence between IFRS and U.S. GAAP. The IASB has adopted fair value accounting measures and has agreed with the Financial Accounting Standards Board (FASB) on a fair value definition and disclosure requirements (IFRS). Therefore, the importance of understanding consequences of fair valuation is important on a global scale.

The remainder of this dissertation is organized as follows. The second section consists of the literature review and hypotheses development, and the third section outlines the methodology for this study, which is followed by the data analysis and results in Section four. Section five concludes with study limitations and suggestions for future research.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Fair Value Accounting

The Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) recently agreed on a definition for fair value. According to the Accounting Standard Codification 820 and IFRS 13, "Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (ASC 820; IFRS 13). Further, the objective of fair value accounting is to increase relevance and reliability[3] of accounting information over historic cost accounting (Barlev and Haddad 2003). Despite the aim of the implementation of fair value accounting, its contribution to relevance remains under debate.

Opponents of fair value accounting argue that the fair value of the asset or liability does "not match up well to the ideal of the hypothetical frictionless competitive market" (Plantin, Sapara, and Shin 2008: 436) and, therefore, fair value accounting offers limited information value (Benston 2008; Hilton and O'Brien 2009; Nelson 1996). Further, they suggest that changes in fair value are transitory because accounting entries reverse when the asset or liability matures or is sold (ABA 2009) and is therefore unnecessary.

Using the examples presented in SFAS 157 Implementation Guidance, Benston (2008) contend that fair value accounting does not provide relevant information. He indicates that firms

[3] For information to be relevant, the "accounting information must be capable of making a difference in a decision… Financial information is capable of making a difference when it has predictive value, confirmatory value or both" (Kieso, Weygandt, & Warfield, 2013: 46). For information to be considered reliabile, the accounting information must represent what has occurred and the information is free from material error, neutral and complete.

tend to erroneously include transaction cost when calculating the exit price to increase fair value. Certain assets should have a negative carrying value on the books, yet fair value accounting allows firms to carry these assets at substantially higher values. Benston further argues that the fair value of some assets and liabilities create an opportunistic environment because of discretion in determining fair value and the difficulty for external auditors to uncover misreporting. He concludes that fair value accounting offers little value relevance to information users.

Further, Nelson (1996) investigates the effects of SFAS No. 107, *Disclosure about Fair Value of Financial Instruments*. She finds that fair value disclosures do not provide any explanatory power. Once she controlled for future profitability, she finds that fair value disclosures provide explanatory power. However, this results in lack of relevance of the fair value securities.

In a study of Inco Ltd., a company in the nickel mining industry, Hilton and O'Brien (2009) investigate the impact fair value accounting has on managers' write-down decisions. They provide empirical evidence that managers' use discretion over the timing and extent of asset write-downs to keep the assets overvalued on their books. Therefore, their study provides evidence that adds to the negativity connected with the subjectivity in fair value accounting. In another study, Benston (2006) argues that fair value led to the demise of Enron, in particular Level 3 fair valuation. Managers at Enron used discretion of Level 3 fair value energy contracts to hide overwhelming losses because their compensation was based on the fair value of these contracts.

Conversely, proponents argue that fair value accounting is value relevant because it reflects the trading price of an asset or liability. Plantin et al. (2008: 436) state that fair value is "a measurement system that reflects transaction prices that would lead to better insights into the current risk profile of firms so that investors could exercise better market discipline and

corrective action on firms' decisions." Prior research provides evidence that fair value accounting practices provides greater relevance in decision-making than historic accounting practices (Blankespoor, Linsmeier, Petroni, and Shakespear 2013; Ahmed, Kilic, and Lobo 2011; Dunbolt and Rees 2008; Barth 1994).

Penman discusses the differences between fair value accounting and historic accounting. He argues that in fair value accounting, "the balance sheet satisfies the valuation objective, and the income statement provides information about risk exposure and management performance" (2007: 36). In other words, fair value accounting seems to provide a greater wealth of information over historic accounting. Lauz and Leuz (2010) discuss the extent fair value accounting contributed to the 2008 financial crises. They counter the arguments that fair value intensified the financial crises and found that these claims are unfounded. They conclude that in times of crises, fair value accounting does not exacerbate security write-downs. Rather, they claim that there are regulatory mechanisms in place to prevent excessive write-downs.

A recent study provides support that the fair value of financial instruments in the banking industry provide relevant information. Blankespoor et al. (2013) investigate whether the fair value of financial instruments provides a greater explanation of banks' credit risk. They demonstrate that the fair value of financial securities explains greater variation in banks' credit risk over a U.S. GAAP method that uses a mixture of historic values and fair values. Thus, their study provides support that fair value accounting is relevant.

In addition, Barth (1994) examines securities in the banking industry by comparing fair value estimates to historical costs and provide support for the notion that fair value estimates on securities gains and losses has relevant explanatory power in the market. Further, Ahmed et al. (2011: 70) investigate "the association between changes in fair value derivatives and changes in non-derivatives positions" and provide evidence that fair value provides relevant and transparent

information to aid investors' decisions. In addition, Dunbolt and Rees (2008) examine fair value relevance of firms specializing in real estate and investment trusts. They compare fair value and historical accounting information, and find that when balance sheet values are unambiguous, fair value provides more relevant information than historic accounting practices. In summary, although fair value accounting creates opportunities to distort information, prior research provides evidence that the fair valuation of assets and liabilities has explanatory power on decision-making purposes. Thus, fair value accounting can provide relevant information to users.

Impact of Fair Value Adjustments on the Financial Statements

The fair value accounting treatment for assets and liabilities differs based on the length of time the manager intends to hold that asset or liability. The length of time dictates whether changes in fair value are identified in the income statement or the other comprehensive income statement. When revaluation of the fair value of an asset or liability occurs, the adjustment is recognized on the balance sheet. If the asset or liability were listed as a trading security intended to be held for three months or less, then unrealized gains and losses appear in the income statement as part of operating income. If the security were classified as an available-for-sale asset or liability intended to be held between three months to an indefinite period, any gains or losses appear in the Other Comprehensive Income Statement. When either classification of security is traded, any realized gain or loss is recognized in the income statement.

Fair Value Hierarchy

Financial Accounting Standard (FAS) No. 157, *Fair Value Measurements,* arranges the source of information used to determine the fair value of assets or liabilities in a hierarchy of three levels. Level 1 uses observable inputs to determine the fair value, such as quoted prices from an active market. Level 2 inputs are indirectly observed through quoted items from comparable assets or liabilities. The market approach, which can be used to obtain Level 1 and

Level 2 fair values, "uses prices and other relevant information generated by market transactions involving identical or comparable assets, liabilities, or groups of assets and liabilities, such as a business" (ASC 820-10-20, 2014). In addition, the highest and best use valuation approach may be used to obtain Level 1 and Level 2 fair values. This method is "determined based on the use of the asset by market participants even if the intended use of the asset by the reporting entity is different" (FAS 157-42-C36, 2014).

Level 3 fair value estimates differ from Level 1 and 2 in that the inputs used are unobservable and derived from managers' assumptions. Further, Level 3 fair values are unique in that there is no market or comparable asset or liability to determine a value (Kieso et al. 2013; Zyla 2013). Therefore, managers' discretion used to determine the value of these assets and liabilities. Any discretion used to arrive at Level 3 fair values are recognized in the balance sheet while in the income statement or the other comprehensive income statement to reflect the economic value (Penman 2007).

Because Level 3 fair values have unobservable inputs, fair value measurement uses other methods to determine the recognized value. These methods include the income approach, the cost approach, and the calibration method. The income approach converts future amounts into their present value. According to ASC 820 codification, fair value measurement using the income approach uses the present value of market expectations. This method estimates the expected cash flows the asset will generate over the estimated useful life. Then the firm discounts the sum of the estimated cash inflows by a risk-adjusted rate of return (Zyla 2013). The cost approach, or current replacement cost, is the value that reflects the cost to replace the asset. This method uses the estimated current replacement cost of a comparable asset with equivalent utility adjusted for obsolescence. Specific assets such as buildings, or intangible assets such as customer relationships or personnel, require the cost approach (Zyla 2013).

A relatively new method that evolved with efforts toward convergence between U.S. GAAP and IFRS is the calibration valuation method. This valuation requires unobservable inputs and therefore is limited to Level 3 fair value calculations. At the initial valuation of the asset or liability, the fair value of the item and the transaction price are calibrated so that they are equal. In subsequent periods, fair value adjustments will highlight the difference between the observed transaction price and unobservable inputs that were not initially captured by the valuation method (Zyla 2013).

In summary, there is a fair value hierarchy. Classification in the hierarchy uses the inputs available to determine the fair value of the asset or liability. Level 1 and Level 2 have observable inputs or external values available to use as the fair value or as a benchmark when arriving at the fair value. However, Level 3 fair values use unobservable inputs to arrive the fair value that is recognized on financial statements.

Discretion in Level 3 Fair Value

A common occurrence with the income approach, the cost approach, and the calibration method is that they require judgment or discretion regarding the inputs (Zyla 2013). For example, the income approach requires the user to estimate the discount rate of return and the useful life. The cost approach requires the user to determine the cost to replace the asset or liability. A Level 3 fair value has no comparable items to use as a benchmark. Therefore, discretion is necessary to determine what constitutes a similar asset or liability and what necessary adjustments are required to account for obsolescence.

In a Monte Carlo simulation, Folpmers and de Rijke (2010) valued mortgage-backed securities, Level 3 assets, using a combination of observable and unobservable inputs. Their simulation results in a large dispersion of fair values. In other words, managers have a great deal of discretion when selecting a value within a range of possible values. In addition, accounting

guidance dictates that in many cases "the applicable financial reporting framework does not prescribe the method of measurement or may specify an alternative method for measurement" (AU-C Section 540-A22, 2014). This means that managers also have discretion regarding the method selection used to ascertain the fair value. Further, managers have the option to select multiple valuation techniques. However, once a firm selects a valuation technique, the method must be used consistently (Kieso et al. 2013). Managers have the option to change the method provided the new fair value technique provided if managers believe that the new technique provides a more accurate measure.

Generally, fair value estimations are a function of numerous inputs and estimation methods that can vary among assets and liabilities within each company (Zyla 2013) resulting in numerous possible fair values. Therefore, this results in significant discretion available to managers when determining not only the value of the inputs, but also which inputs to include in the model. A valuation expert acknowledges the complexity:

> "Full valuation of level 3 assets is both an art and a science, says Cindy Ma, a board member of the International Valuation Standards Council (IVSC), the international standard setter for global valuation standards and the valuation of complex, illiquid assets. 'There is no hard and fast rule of what the valuation range will be. Valuers use several pricing methods to triangulate a range, which will depend on factors such as asset class, geography, the age of the asset, illiquidity and the availability of comparable securities.'" (Cusworth 2012; www.risknet.com).

Despite managers' discretion arriving at a fair value, prior literature demonstrates that Level 3 fair value is reliable and relevant to information users. Kolev (2009) examined the value relevance at each of the fair value hierarchies and finds that investors view managers' assumptions surrounding Level 3 estimates as reliable. In an archival study, Song, Thomas, and Yi (2010) find evidence that the market responds to Level 3 fair values assets and liabilities.

They provide support for the notion that investors perceive a greater value relevance for fair value security if the firm has strong corporate governance.

In summary, managers have discretion over the recognized Level 3 fair value. In particular, managers have discretion regarding the method used, the inputs used in the method, the values of those inputs, and the ultimate selection of the recognized fair value. Yet, despite the numerous estimates made by management, Level 3 fair values provide relevant information used by decision-makers.

Fair Value Influences Decision-Making

Aside from fair value providing relevant information, prior scholarship examines several aspects of the effects fair value accounting has on investors (Kadous, Koonce, and Thayer 2012; Koonce, Nelson and Shakespear 2011), analysts (Hirst, Hopkins, and Wahlen 2004), and manager decision-making (Chen et al. 2013; Wang 2010; Plantin et al. 2008).

Investors

Fair value accounting affects both sophisticated and non-sophisticated investors during the decision-making process. Using multiple experiments, Koonce et al. (2011) examine whether investors' decisions will be contingent in various fair value settings. They find that investors believe that the fair value of assets is more relevant than the fair value of liabilities. In addition, investors are likely to find fair value relevant when trading securities in the short term. Kadous et al. (2012) extend fair value relevance research to include reliability. Employing an experimental methodology, they provide support for the notion that financial statement users link fair valuation reliability to relevance. This study has implications in the field of fair value accounting judgments in that, if users do not perceive the information as reliable, they will deem the fair valuation measure as irrelevant when making decisions.

Analysts

Using analysts as participants, Hirst et al. (2004) examine the effects of fair valuation on risk and value judgments. They find that when banks use full fair value measures, when all fair value adjustments are recognized in income, analysts are better able to distinguish fundamental risk from share characteristics as opposed to when banks use piecemeal fair value measures, when some fair value adjustments are recognized in income and the remaining adjustments are disclosed in footnotes. Hirst et al. suggest that because analysts do not distinguish risk properly when using a fair value piecemeal method, their judgments are not adhering to the market efficiency concept because they are not adjusting to all available public information. These results are important to the fair valuation literature in that they furnish evidence that differences in fair value recognition can influence decisions of even sophisticated specialists.

Managers

In an analytical study, Plantin et al. (2008) demonstrate how marking-to-market and historic accounting can lead to biases in managerial decision-making. They develop models that compare historic accounting and fair value accounting finding that each method has shortcomings depending on the life, the liquidity, and the seniority of the asset or liability. For example, when using historic accounting practices, if the asset has appreciated, managers are likely to have no inducement to use their negotiation skills when selling the asset, resulting in an inefficient sale price of the asset.

In an economic experiment, Wang (2010) investigates the impact fair value has on decision-making in a bargaining setting. In particular, he examines the effects fair valuation has on negotiations between managers and verifiers in bargaining games. He provides evidence that when managers and fair value verifiers, or consultants, are negotiating a fair value over a range of possible values, and the contract between the manager and the verifier is renewable, the

agreed upon value is over-stated in favor of the manager. In an experiment using students, the manager made few concessions from his or her initial value in a renewable contract setting. Conversely, when the contract was for one period, the agreed fair value was under-stated and favored the verifier. This study provides evidence that managers can make concessions that result in agreed upon fair values that deviate from the initial fair value estimate. The managers in the experiment did not anchor on the initial fair value in the one period contract setting. This implies that there are circumstances surrounding fair valuation decisions in which managers are willing to adjust from their initial position.

Chen et al. (2013) perform an experiment to test the effects of fair value accounting on managers' real economic hedging decisions. Using a sample consisting of accounting professionals, Chen et al. (2013) find that, in the presence of fair value accounting and economic information, accounting professionals are likely to make sub-optimal investing choices, such as not hedging an investment when the information provided suggests that hedging is necessary. Yet when managers have only economic information, they are likely to make sound hedging choices. Therefore, Chen et al. (2013) provide evidence that an unintended adverse effect arises from fair value accounting.

More or Less Conservative Fair Values

Typically, once managers and/or valuation experts determine possible fair values, managers have discretion regarding the recognized fair value. Managers may have incentives to select fair values within the range that can be more or less conservative. Prior research finds that managers can be enticed to use discretion to select a less conservative fair value to manipulate earnings (Dechow and Shakespear 2009; Dechow, Myers and Shakespear 2010), to align with manager optimisim (Kedia and Philippon 2009). Conversely, managers can also select more conservative Level 3 fair values due to national culture creating a tendency to report more

conservative accounting estimates (Ball, Kothari, and Robin 2000), fear of litigation (Lobo and Zhou 2006), or avoidance of auditor scrutiny (Milbradt 2012).

Prior literature provides support that managers may manipulate earnings through selecting Level 3 fair values that are less conservative. Due to the subjectivity surrounding the assumptions of fair value measurement, managers act opportunistically to increase firm values. Examining asset securitization, Dechow et al. (2010) find a negative association between income from securitization activities and income from non-securitization activities. They interpret this finding to indicate that managers use discretion over fair value accounting to smooth earnings. In a response to this study, Barth and Taylor (2010) caution that Dechow et al.'s (2010) findings "do not speak to whether discretion in fair value estimates is the source of earnings management" (27) because fair value estimates for securitized income only provide a limited opportunity for earnings management. Instead, Barth and Taylor (2010) contend that the greatest source of opportunistic behavior stems from managers' securitization decisions. However, Dechow and Shakespear (2009) establish that because managers can opportunistically select which assets to securitize, the discretion provided by fair value allows managers with opportunities to manage earnings.

These studies support the notion that Level 3 valuation discretion creates earnings management opportunities and offer evidence that firms may choose values that are less conservative. Of course, not all managers or firms that select the less conservative Level 3 fair values are participating in earnings management behavior. Managers may be optimistic (Kedia and Philippon 2009), which could result in managers being less conservative in their estimates. Penman (2007) states that because managers tend to be optimistic, their fair value estimates may be affected. In turn, if managers are overly optimistic without any real basis for their optimism, then accounting information may be biased as a result of their fair value estimates.

On the other hand, firms may have policies for transparent accounting,[4] resulting in a firm culture with a preference for more conservative fair values. In addition, managers may have incentives to behave conservatively. For example, the passage of Sarbanes Oxley in 2002 caused managers to report more conservatively due to the CEO and CFO certification of financial statements (Lobo and Zhou 2006). Fear of possible litigation may also cause managers to err on the side of caution and report more conservative fair values (Basu 1997). Also, national culture may influence an organization's conservatism. For example, Ball et al. (2000) find that firms located in common law countries have more conservative reporting tendencies than firm located in code law countries. In addition, firms that have conservative accounting practices have higher returns on equity than firms that do not have conservative accounting practices (Cheng 2005). This can entice managers to report conservative values. Furthermore, managers may be apprehensive of selecting a less conservative fair value due to increased audit risk (Milbradt 2012). A less conservative recognized fair value may alert auditors to possible overstatement of accounting estimates and result in more substantive audit procedures (Arens, Elder, and Beasley 2008).

Accordingly, managers have incentives to recognize a Level 3 fair value that can be either more or less conservative. These incentives include earnings management, adhering to company culture, national culture, or avoidance of auditor scrutiny. Any of these motives can influence managers' discretion when selecting a fair value within a range of values.

Selling Decisions

When investigating selling decisions of fair value securities, prior literature states that reference points, the perceived value of the asset or liability, affects the decision-making process.

[4] For instance, Costco announced their corporate mission is to increase financial transparency and to use conservative accounting practices (Galanti 2013).

When making a decision, individuals develop and use a reference point (Kahneman and Tversky 1979). Loss aversion is associated with reference point determination in decision-making scenarios (Bromiley 2009). Baucells et al. (2011) investigate the decision-making process when indiviudals are given a sequence of information. They demonstrate that the most recent information available recieves the greatest weight when forming a reference point in a decision-making process. The significance of that information decreases once new information becomes available. Therefore, managers are expected to use the most recent recognized fair value when making Level 3 fair value selling decisions.

Motivated reasoning argues that people "are more likely to arrive at the conclusions they want to arrive at, but their ability to do so is constrained by their ability to construct seemingly reasonable justifications for these conclusions" (Kunda 1990: 480). When individuals have a desired outcome, they are likely to view the information (e.g., fair value recognized) that benefits their objectives (e.g., a gain) (Marks 1951). Mishra, Mishra, Rixom, and Chatterjee (2013) contend that motivated reasoning has two factors that influence decision-making. The first is whether the individual is motivated to pursue the outcome. Mishra et al. (2013) argue that if the individual's desire to pursue the outcome increases, they are likely to justify actions to achieve that outcome. However, if their desire diminishes, the individual's search to justify actions should also decrease. The second factor relates to the ability to alter information in their favor. If the facets that influence the ability to justify pursuing the desired outcome are open to interpretation, individuals can distort these facets in order to justify their sought-after outcome. Therefore, motivated reasoning suggests that a manager is likely to distort the information provided, whether the recognized fair value is more or less conservative in order to justify that the information is accurate. This distortion is due to the manager pursuit of a desired outcome, which is to recognize a gain. When the manager desires to sell the security, he or she should

justify the selection of a more or less conservative recognized fair value as an accurate representation of the true underlying value of the asset or liability.

Therefore, this study predicts that when a firm selects a Level 3 fair value that is greater than the historic value, motivated reasoning theory (Kunda 1990) postulates that even though the manager is aware of the assumptions used to arrive at the subjective value, he or she should still believe that fair value is accurate because of the unrealized gain. This is because the manager will view the unrealized gain from the fair value adjustment as favorable, and will justify that the fair value accurately represents the true underlying value of the asset or liability. Thus, when selling a level 3 fair value asset or liability, the conservative level of the assumptions used will influence managers' asking price. If more conservative assumptions were used, then managers' asking price is likely to be lower than if a less conservative fair value were chosen because the recognized fair value is perceived to reflect the underlying value. On the other hand, when a firm recognizes a less conservative fair value, motivated reasoning theory posits that managers are likely to seek a higher asking price when selling the asset.

In summary, the discretion over whether to select a more or less conservative Level 3 fair value should affect managers' selling decisions. Motivated reasoning theory (Kunda 1990) suggests that when managers make selling decisions, they are likely to believe that the fair value recognized is an accurate representation of the underlying value of the asset or liability despite knowing that the fair value recognized is more or less conservative within a range of values. Accordingly, motivated reasoning and prior literature leads to the following hypothesis:

> **H1: Level 3 fair value assets and liabilities that are based on less conservative assumptions will cause managers to have a higher asking price for the security if they were to sell the security, than if the fair value measure was based on more conservative assumptions.**

The selection of more or less conservative fair values are also likely to influence management's decision regarding whether or not to sell the asset or liability. The valuation adjustments made when re-valuing Level 3 fair value of the assets or liabilities affect the balance sheet. In turn, these figures affect financial ratios, which external parties, such as lenders or investors, use when evaluating the firm.

Milbradt (2012) argues that Level 3 valuations cause managers to avoid trading the assets or liabilities. When a firm purchases or sells Level 3 fair value assets or liabilities, they reevaluate fair value assets and liabilities they still own. If the firm needs to keep their leverage artificially inflated, managers are likely to suspend trading in order to avoid this revaluation. Furthermore, he states that managers tend to suspend trading in order to keep ratios from falling beneath a required firm or lender ratio threshold.

An asset or liability with less conservative recognized fair values on the financial statements affects financial ratios. When managers sell this Level 3 fair value asset or liability, U.S. GAAP requires the firm to reverse the entries in order to remove the security and the corresponding adjusted fair value (Kieso et al. 2013), resulting in a change in the firms' financial ratios. For example, a manager has a range of fair values to select from between $80 to $100 for an asset. If the manager were to recognize the least conservative fair value of $100, and if the market were only willing to pay $90 for that asset, then this will impact financial ratios, such as the current ratio. This is because the accounting treatment will remove the carrying value of the security ($100) and will increase cash ($90). This will result in assets decreasing by $10 and thereby affecting financial ratios that include assets.

Prospect theory postulates that when individuals make decisions, they tend to consider the potential gain or loss associated with the outcomes creating a gain function that is concave while the loss function is steeply convex (Kahneman and Tversky, 1979). In other words, people

are generally more risk averse when the setting is framed as a gain as opposed to a loss condition (Bazerman and Moore 2009; Odean 1998; Slovic, Fishchoff, and Lichtenstein 1993).

As a result, managers are less likely to sell a Level 3 fair value asset (liability) with a high (low) valuation since they would rather hold the inflated security on their balance sheet. However, if the asset (liability) uses a more conservative fair valuation, then managers should not have an incentive to keep the less conservative asset or liability on the financial statements. Based on the preceding arguments the second hypothesis is:

> **H2: Manager's willingness to sell Level 3 fair value securities is greater when more conservative assumptions are used than when less conservative assumptions are used for valuation**.

When managers are offered a selling price that when compared to the recognized fair value is a loss, managers should be disinclined to accept offers to sell a Level 3 fair value asset or liability. Motivated reasoning, as stated earlier, is the behavioral tendency that individuals tend to distort information in a manner that supports their desired outcome (Kunda 1990). In a setting in which managers are knowledgeable about whether the fair value recognized is more or less conservative, managers tend to believe that the value selected to accurately portray the "true" underlying value of the asset or liability.

Prospect theory posits that individuals are more likely to be risk averse to gains than losses. In particular, Kahneman and Tversky (1979: 287) find that when "a person who has not made peace with his losses is likely to accept gambles that would be unacceptable to him otherwise." Thus, in a setting in which managers are conisdering selling a Level 3 fair value asset or liablity, prospect theory suggests that managers should desire to retain an asset or liability if that transaction generates a realized loss. In a scenario in which the manager can obtain a realized gain from the sale, they are induced to sell the asset or liability. For example, a manager purchases an available-for-sale security for $100 and fair value accounting adjusted the

carrying value to $120. If the manager sold the security for $110, there would be a $10 ($110-100) realized gain on the income statement. However, as stated earlier, motivated reasoning argues that the manager is likely to believe that fair value is an accurate representation of the underlying value of the security because of the gain. Therefore, they are likely to set their expectation, or reference point, to $120. In addition, prospect theory contends that because the manager increased his or her reference point or expectation of the value of the security to $120, they should view offers below $120 as a loss. Thus, prospect theory predicts that the manager will not accept the offer despite a potential realized gain.

Although prospect theory suggests that managers will avoid a loss, motivated reasoning contends that managers' perspective of whether a loss or gain is present hinges on managers' ability to rationalize whether the information is valid. Kunda (1990) states that motivated reasoning causes individuals to arrive at the conclusion they desire depending on their ability to justify their conclusion (Kunda 1990). Further, as stated earlier, Mishra et al (2013) contend that individuals will alter the information available in order to rationalize their sought-after outcome. In this context, managers are expected to distort whether the fair value represents the underlying value of the Level 3 fair value assets and liabilities in order to justify their decisions.

Grounded in motivated reasoning theory, when confronted with an option to sell at a lower price than the conservative recognized fair value, managers will alter the information provided (whether the conservative level of the discretion used represents the value of the security) ,in order to justify their actions (to sell or to not sell below fair value). When the assumptions used are more conservative, managers are less likely to sell below the fair value because they are aware that the valuation method employed yields a conservative fair value. Managers will not perceive the recognized fair value as an accurate representation of the underlying security, and prospect theory argues that managers will view this transaction as a loss.

Therefore, when more conservative discretion is used to arrive at the fair value, managers will be less probable to accept an offer below the recognized fair value than if less conservative discretion is used. However, as the conservativism level decreases, managers' willingness to accept a price below fair value increases because of managers' inability to rationalize that the least conservative fair value is accurate. Thus, managers are mindful that the fair value of the Level 3 security is at the "high" end and therefore, is likely not to result in a perceived loss scenario.

To summarize, managers are likely to use the most recent recognized fair value as their reference point when selling an asset or liability with a Level 3 fair value, pending they can rationalize that fair value represents the underlying value. Prospect theory (Kahneman and Tversky 1979) coupled with motivated reasoning theory (Kunda 1990) predicts that managers are unlikely to sell the Level 3 fair value security below the recognized fair value if the security is valued more conservatively, and more likely to sell if valued less conservatively in order to avoid perceived losses. Therefore, based on prior arguments, the following is hypothesized:

> **H3: Managers are more likely to accept an offer below the recognized fair value when less conservative discretion is used than when more conservative discretion is used.**

Volatility

The inputs used to determine the recognized fair value of assets and liabilities may result in having historically low or high volatility patterns. Prior literature has shown that fair value securities can have historical volatility (Barth, Landsman, and Wahlen 1995). However, managers can use different assumptions in the valuation models to change the historical volatility pattern. These assumptions include adjusting the asset life or risk rate of return (Zyla 2013), or using of different fair value income methods (Hodder, Hopkins, and Wahlen 2006).

The discretion allowed for determining the inputs to calculate the recognized fair value can create low or high volatility of the historic pattern of recognized fair values. Nevertheless, not all volatility is completely controllable at the discretion of management. Some valuation model functions may include factors that are not subject to manager discretion, such as the risk free rate, or limited reasonable values, such as a limited asset lifespan (Zyla 2013).

When developing the Level 3 fair valuation model, assumptions that use shorter life spans can create greater volatility by influencing the risk rate (Zyla 2013). Conversely, if managers were to increase the asset life in the fair valuation model, then they can decrease the volatility associated with those assets and liabilities. This means that whether managers adjust the life span of the security or directly change the risk rate, they have discretion to influence the volatility of the Level 3 fair value. Because Level 3 fair value securities are revalued when trading of other fair value investments occurs in the firm (Milbradt 2012), the number of revaluations is the same regardless of the volatility level. However, greater volatility may result in recognized fair values that are higher or lower than if the security has low volatility. Thus, the number of adjustments of the historical fair value will be similar among Level 3 fair value securities regardless of volatility level.

Typically, firms hold trading securities for three months or less although available-for-sale securities can be held for an indefinite number of years (Kieso et al 2013). Assets and liabilities that are Level 3 fair values are typically illiquid (Plantin et al. 2008) and because there is no active market for these assets, they can range from short-lived investment to an indefinite life investment. If the manager selects a longer asset-life span, they can decrease the historical volatility pattern of the asset or liability (Zyla 2013). Therefore, based on assumptions used in the fair valuation model, managers can decrease or increase the volatility pattern of the recognized fair value of the assets and liabilities.

High and Low Volatility

When discretion leads to a high volatility pattern of the recognized assets and/or liabilities, managers' risk perceptions and decisions are affected. As documented by prior research, high volatility can lead to increased risk perceptions (Bourgeois 1985) and, in turn, these risk perceptions affect investment decisions, such as retaining or selling an investment (Dixit and Pindyck 1994). As volatility increases, so should uncertainty affecting accountants' decision-making (March 1987). Conversely, assets and liabilities with low volatility fair value patterns are likely to lead to less uncertainty and decrease risk perceptions in the decision-making process.

In an experiment, Chan, Tan, and Wang (2012) examine the effects fair value accounting has on managers' hedging decisions. They find that managers tend to be averse to report volatile earnings, preferring to report relatively stable or consistent earnings. Furthermore, in a survey of over 400 financial executives, Graham, Harvey, and Rajgopal (2005) provide support for the notion that managers have incentives to smooth earnings and forgo economic opportunities. They find evidence that managers believe that "reporting volatile earnings reduces the predictability of earnings, which in turn reduces stock prices because investors and analysts dislike uncertainty" (Rajgopal 2005: 1). These studies suggest that investors prefer stable earnings. Thus, managers have incentives to provide smooth earnings information, such using consistent fair values generating smooth unrealized gains on the income statement or the other comprehensive income statement.

Plantin et al. (2008) suggest that fair valuation creates a bias in managerial decision-making. They indicate that, due to fair value volatility, the fair value measure does not reflect the underlying economic value of the asset or liability. Plantin et al. (2008) develop a model suggesting that when employing fair value accounting in an illiquid market, firms can generate

artificial volatility that can lead to inefficient sales during financial downturns. As discussed previously, prospect theory argues that individuals are less averse to risk in loss settings than in gain settings (Kahneman and Tversky 1979). In other words, in order to protect the unrealized gains generated from fair value adjustments, managers tend to be risk averse when making selling decisions.

Further, traditional agency theory uses the underlying human behavior assumption that the managers tend to be risk averse, and that managers and shareholder may have different risk preferences (Eisenhardt, 1989). Agency theory is based on the premise that principals and agents can have opposing objectives unless the agent, or manager, has incentives to act in a manner that is congruent with the principal or shareholder objectives. Numerous studies find evidence that managers are risk averse unless incentivized to be otherwise (e.g., Brink, Jobson, Douglas 2011; Gomely, Matsa, and Milbourn 2013; Rego and Wilson 2012; Jensen and Meckling, 1976). Further, through surveys, March and Shapira (1987) find that managers are risk averse in nature. In particular, they support the view that managers will "look for alternatives that can be managed to meet targets, rather than assess or accept risks" (March and Shapira, 1987: 1414). When the recognized fair value exceeds the historic cost, the firm should have an unrealized gain associated with the valuation. Therefore, because of the gain context, managers are likely to be risk averse when making selling decisions of fair value assets and liabilities.

In a setting with highly volatile fair value patterns, managers tend to be more risk averse than in a setting in which the recognized fair value pattern is consistent or has low volatility. The greater uncertainty associated with high volatility patterns should create a desire to sell the Level 3 fair value asset or liability to avoid potential risk. However, when the Level 3 fair value of assets and liabilities has a low volatility pattern of recognized fair values, managers do not have the same motivation to sell. With a decreased risk perception, managers are not inclined to sell as

quickly. Therefore, in low volatility fair value settings, managers can be expected to have a higher asking price than the most recent recognized fair value.

In summary, because managers have discretion regarding the assumptions of inputs used in the valuation model, they can influence the historical volatility pattern of the recognized fair value. Managers can create relatively stable or volatile patterns of recognized fair valuation by changing assumptions regarding the life span of the asset or the risk rate of return. Increased volatility creates uncertainty in future fair values, and using prospect and agency theoretical views,[5] risk averse managers should not want to retain these assets and liabilities. Conversely, assets and liabilities that have historically consistent fair values have a lower risk of the future recognized fair value significantly changing. Thus, based on the prior arguments, this leads to the next hypothesis:

H4a: When Level 3 securities have high volatility, managers' asking price will decrease from the most recent recognized fair value.

H4b: When Level 3 securities have low volatility, managers' asking price will increase from the most recent recognized fair value.

[5] Another complementary theory is the representativeness heuristic (Kahneman and Tversky 1973). This theory argues that individuals develop systematic judgment that creates a correlation between past information and future decisions based on the consistency of the past information. The theory of representativeness heuristic is defined as "the more consistent the input, the more representative the predicted score will appear and the greater confidence in that prediction" (Kahneman and Tversky 1973:249).

III. METHOD

Design and Participants

This study is a 2X2 between-subjects design manipulating the level of fair value adjustment (whether more or less conservative) and the historical volatility pattern (low or high) with Level 3 securities in the firm. The primary dependent variables are (1) the participant's likelihood of selling the Level 3 fair value security and (2) if they were to sell the security, what is the participant's asking price. Graduate students were recruited from a mid-Atlantic university and Accounting professionals were recruited from the Qualtrics Panel to take part in this study. Prior literature indicates that graduate students can be valid surrogates for professionals in studies where the integration of information is not overly complex (Elliott, Hodge, Kennedy, and Pronk 2007). In addition, Ashton and Kramer (1980) contend that both students and professionals, as decision-makers, possess the same biases. Tests are ran to determine if student responses differ significantly from professional responses. Participants are randomly assigned to one of the four treatments.

Tasks and Procedures

Participants were asked to place themselves in a hypothetical situation in which they were a manager of a financial services firm. They purchased a pool of Level 3 fair value available-for-sale securities. After a brief review of the accounting effects valuation has on these securities, the participants were told that the securities are valued either more or less conservatively. In addition, the valuation affects the volatility of the securities. After six quarters,

their firm is considering an investment in a venture that requires a large sum of cash and they can sell the Level 3 fair value securities to contribute the investment. Based on these circumstances, participants had to make selling decisions of the pool of securities.

Figure 1: Scenario Time Line

Time from purchase to considering selling is six quarters

Participants responded to four questions (dependent variables), two manipulation check items, and debriefing items followed by demographic questions. The instrument took approximately 10 minutes to complete. The professionals were contacted through the Qualtrics Panel, a research marketing company that uses web-based surveys while graduate students were contacted in class and received a hard-copy survey.

The instrument was pilot tested numerous times with undergraduate students. During the pilot tests, students were asked follow-up questions to identify areas that required modification. To establish face validity, a fair valuation expert provided guidance on this study. In addition, an expert specializing in complex fair valuations from a Big 4 accounting firm, critiqued the instrument and provided advice in order to keep the hypothetical scenario is in compliance with ASC 820 guidance.

Independent Variables

The independent variables are the levels of the valuation and volatility. The level of valuation is manipulated at two levels, whether the firm recognizes fair values that are more or less conservative. Participants assigned to the high valuation treatment were informed that the pool of Level 3 securities they originally purchased for $10 million, after six quarters has a fair value of $16 million. Conversely, participants assigned in the conservative treatment are informed that the Level 3 securities have a fair value of $13 million after six quarters.[6] To avoid confounding effects caused from the sunk cost fallacy (Heath 1995), only fair values that generate unrealized gains over the historic cost of the security were selected.

The second independent variable, historical volatility, is manipulated at two levels (low or high). A graph and table was provided to the participants to highlight the volatility of the pool of securities purchased (instruments are posted in Appendix A). The graphs illustrated the valuation changes during the six quarters. The tables provided the re-valuation of the pool of securities during each quarter along with the unrealized gains and losses that are reported on the other comprehensive income statement.

Participants assigned to the high volatility treatment were informed that historically the firm has high volatility of the recognized Level 3 fair values. In addition, they were told that the market value of these securities changes frequently, and if this pattern persists in the future then the valuation is likely to change. Conversely, participants assigned to the low volatility treatment were informed that the firm historically has low volatility of Level 3 securities. The valuation pattern of the low volatility treatment is similar to that of the high volatility treatment with the

[6] These dollar amounts were selected based on the pilot test and follow-up discussions with undergraduate students. The pilot test started with $11 million for the conservative treatment but students indicated that they did not notice the fair value increase from the historic cost. Other modifications were made after the pilot testing, including changing the period from five quarters to six in order to increase volatility on the graph. In addition, the most recent unrealized fair value for the non-conservative treatment was increased to $16 million in order to create more variance between the treatments.

exception that the variance between the highest and lowest recognized fair value is smaller, thereby providing an expectation that the pattern was likely to continue.

Dependent Variables

Participants were asked to decide whether to sell the pool of securities to release cash in order to contribute for a large company project. Multiple dependent variables were used in order to test all of the hypotheses. The first dependent variable assesses the likelihood of selling the pool securities. Participants responded on a scale ranging from 0% likelihood of selling to 100% likelihood of selling. This dependent variable was included to test hypothesis two, whether more or less conservative recognized fair value estimates influence manager's willingness to sell the security.

Assuming that they decided to sell the pool of securities they purchased six quarters ago, the second dependent variable asked participants to provide an asking price. Participants selected this asking price from a range of values from $9.5 million to $18 million. This range was selected because participants can select a value below the historic cost and values greater than the most recent recognized fair value. Asking price is included in the instrument in order to test the first hypothesis that less conservative recognized fair value estimates will result in higher asking prices and more conservative recognized fair value estimates will result in lower asking prices. In addition, hypothesis four can be tested using this dependent variable to determine whether low or high volatility affects the selected asking price.

The third dependent variable requested participants to indicate the lowest price they would accept within the $9.5 million to $18 million range. This was included in the instrument to verify that participants are using cognitive resources when responding to the questions. If participants cannot identify a greater asking price than the lowest price they are willing to accept, then there is reasonable doubt that they did not understand the questions asked.

Finally, to test hypothesis three, participants were asked to assume that the market offers a price lower than the most recent fair valuation (an offer of $12 million if in the more conservative treatment or an offer of $15 million if the in the less conservative treatment), and assess the likelihood they would accept the offer. Participants responded on a scale ranging from a 0% to 100% likelihood of selling. Because the security in question is an available-for-sale security, the realized gain or loss is the difference between the historic cost and the selling price. The unrealized gains and losses associated with fair value adjustments were reflected in the other comprehensive income statement until sold. At that time, the unrealized gains and losses are reversed. This item was included to determine participants' willingness to accept a selling price that is both below the recognized fair value and above the historic cost.

Post-Experiment Items

Following the measurement of the dependent variable measures, participants were asked to respond to post-experimental questions including manipulation check questions, debriefing questions, and demographic questions. The purpose of these items was to indicate influential factors of participants' selection of dependent variable items.

Manipulation Checks

The instrument contained two manipulation check questions that requested participants to indicate which Level 3 security valuation method were present in the firm. These items are included in the instrument to ensure that participants understood the manipulation when assessing the dependent variable items. The first question asked whether the hypothetical security used more or less conservative assumptions to arrive at the fair value. This question was intended to verify that participants were aware that the firm uses valuation discretion associated with Level 3 fair value. The second manipulation check question asked participants to indicate whether the assumptions used to determine valuation result in high or low volatility. This

question indicates whether participants were aware of the level of volatility associated with the firm's valuation method and the pool of securities. Participants who failed any of the manipulation check questions were excluded in the analysis.

Debriefing questions

Debriefing questions were included in the instrument in order to provide an understanding of the likely causes of participants reporting choices. First, participants were required to evaluate the degree of importance various aspects of the instrument had on their selling choices. They were asked to assess the level of importance of each of the following: the policy to use more or less conservative fair value, the historic pattern of low or high volatility, the historic cost of the pool of securities, the accounting effect of fair value adjustments, and the discretion related to whether or not to sell the pool of securities. These items are used in ANOVA models to help identify which valuation features influenced the association between dependent and independent variables.

Sitikin and Pablo (1992) find that risk mediates the effect on decision-making. This study used prospect theory to assume that managers are risk averse. To confirm this assumption, analyses will be performed to test whether risk mediates the association between dependent and independent variables using Sobel's (1982) mediation tests. Further, to avoid potential estimation errors from OLS assumptions, normality and homoscedasticity, which are necessary for Sobel's mediation tests, confidence interval bootstrapping will be performed to test for mediation (Hayes 2015). If risk mediates the association, then this measure will be included in the hypothesis testing models.

Risk aversion level was assessed using Holt and Laury's (2002) risk aversion measure. Participants were asked to choose to play a lottery. There are ten lotteries with two options in each lottery. As the participants progresses through the ten lotteries, the probability of payout

indicates more risk-taking behavior is present when Option B is selected and more risk-averse behavior is present when Option A is selected. Option A is coded 0 and Option B is coded 1. These scores are summed and provide an overall risk score. Participants can have a score between 0 (more risk averse) and 10 (more risk-taking). The risk score for graduate students has a Cronbach's α of 0.800, the risk score for the professionals has a Cronbach's α of 0.803. These results indicate that the risk measure is reliable at conventional levels.

Lastly, optimism and pessimism could influence decision-making (Isen and Patrick, 1983). Therefore, the Life Orientation Test – Revised (LOT-R) questionnaire, a validated optimism and pessimism measure, is included in the instrument (Scheier, Carver, and Bridges 1994). The LOT-R measure contains three items for optimism, three items for pessimism, four-filler items. The three pessimism items are reverse coded so that the higher score indicates greater optimism and lower score indicates greater pessimism. [7]

This study will test whether optimism influences decision-making by first examining bivariate correlations and then testing for mediation. If optimism is highly correlated with the dependent variables or is a mediator according to the Sobel test (1982) and Hayes (2015) PROCESS method that examines the confidence interval with bootstrapping the standard errors, then optimism will be included in the models for hypotheses tests. The optimism score of graduate students has a Cronbach's α of .731. The optimism score of accounting professionals has a Cronbach's α of .859. Finally, the optimism score of the combined sample has a Cronbach's α of .740. These results indicate that the optimism measure is reliable at conventional levels, higher than the .63 as reported in Scheier et al (1994).

Demographic items

[7] This study is not comparting the difference between optimism affirmation and pessimism disaffirmation. Thus, parsing the items into optimism and pessimism is not performed in this study (Scheier et al. 1994).

The last section of the instrument consisted of demographic items. Items included were the number of years of experience with fair value accounting, whether participants received training in fair value accounting, the number of years of professional experience, current job title, age, and gender. To verify that randomization occurred among the four treatment groups, a MANOVA was estimated (Kerlinger and Lee 2000) that included demographic variables as dependent variables and the level of fair valuation (more or less) conservative and volatility (low or high) as independent variables. This will test for variance differences within groups. In addition, to test for potential co-variation among demographic variables, the correlations among the demographic, dependent, and independent variables will be examined. The presence of moderate to high levels of correlations will result in including these demographic variables as covariates in the analyses.

IV. RESULTS

Sample

A sample consisting of was collected that consists of business school graduate students recruited from a Mid-Atlantic university. In addition, a second sample consisting of accounting professionals was obtained through the Qualtrics Panel. For the purpose of this study, the Qualtrics Panel contacted participants who met the criteria of possessing both fair value accounting and accounting management experience. To safeguard that participants have task-specific knowledge, they were screened to ensure that they have fair value accounting experience, and that they have at least two years of accounting management experience.

Graduate Students

Of the 143 graduate students who participated in this study, 17 (11.9%) failed the manipulation check questions and one (0.7%) had an initial asking price lower than the lowest price willing to accept. This resulted in 125 (87.4%) useable graduate student responses. Of the useable graduate student data, only four graduate students have experience with fair value accounting (3.2%). Of the useable graduate student sample, the average age is 28.59 years old and 31.25% are female. See Table 1, Panels A and B.

To determine whether randomization occurred among the different treatments, the conservative level of the pool of securities (CONS) and the historical volatility (VOL) are used as independent variables in a MANOVA model. The demographic variables: age and gender are included as dependent variables. Neither conservative level, CONS (p = .726) nor volatility,

VOL (p = .412) are significant. In addition, *t*-tests that compare age and gender within the treatments of CONS and VOL are estimated to investigate whether randomization occurred. The *t*-tests for gender and age comparison for within the CONS treatments (p = .960 and .821, respectively) and within the VOL treatments (p = .403 and .116, respectively) are not significant. Therefore, these results provide reasonable assurance that randomization exists in the graduate student sample.

TABLE 1
Graduate Student Demographics

Panel A: Means and Standard Deviations of Graduate Student Responses

Variable	n	Mean	SD
Age	116	28.59	5.97
Work Experience (in years)	100	6.01	4.59

Panel B: Frequencies and Percentages of Graduate Students

Variable	Response	n	Percent
Gender	Male	77	68.75%
	Female	35	31.25%
Total responses to gender question		112	
Age			
	20-24	22	17.60%
	25-29	57	45.60%
	30-34	32	25.60%
	35-39	9	7.20%
	40 +	5	4.00%
Total responses to age question		125	

Accounting Professionals Sample

Of the 741 accounting professionals who began the survey, 287 did not pass the accounting management and fair value accounting experience criteria, and 104 elected not to complete the survey after opening the link to the study (See Table 2). Of the professionals who chose to continue, 82 failed the manipulation check questions and 14 did not select an asking

price that was higher than the lowest price they would accept. Thus, a total of 73 responses will be used in the analyses.[8]

TABLE 2
Professional Accountant Sample

Number of participants who began the survey	744
Lack accounting experience	(291)
Lack fair value experience	(168)
Not in accounting	(2)
Failed manipulation checks	(82)
Failed to indicate a higher asking price than the lowest value willing to accept[9]	(14)
Stopped at invitation page	(91)
Stopped at scenario	(13)
Serious omission (did not respond to any DV)	(10)
Total useable responses	73

The accounting professional sample is 49.3% female and 50.7% male with an average age of 42.79 years (Table 3, Panels A and B). The professionals also have an average of 8.3 years of fair value accounting experience. Of the useable professional sample, 15.07% are employed in a firm that has less than $1 million in annual revenues; 39.73% are employed in firms that have between $1 and $10 million; 21.96% employed between $10 and $100 million; 9.59% between $100 and $500 million; 16% between $500 million and $1 billion in annual revenue.

To determine whether randomization occurred among the different treatments, the conservative level of the pool of securities (CONS) and the historical volatility (VOL) are used as independent variables in a MANOVA model. The demographic variables, age and gender are included as dependent variables. Neither the historical volatility, VOL (p = 0.926) nor

[8] When respondents fail manipulation check questions, Qualtrics Panel terminates the survey. Therefore, no data is available for participants who failed screen questions or manipulation check questions.
[9]Participants are asked to indicate an asking price if they were to sell in addition to the lowest they would accept. If the asking price is not greater than the lowest price they would accept, than they did not use cognitive resources when responding to questions. Therefore, these responses are excluded from analysis.

conservative level, CONS are significant (p = 0.137). Also, the *t*-tests show that age is not significantly different between non-conservative fair value treatments (Large CONS) and conservative fair value (Small CONS) treatments (p = 0.328). Further, age and gender are not significantly different between treatments with high and low volatility (p = 0.789 and 0.569 respectively). However, a moderate difference in gender exists between the conservative treatments (p = 0.082). This is likely due to the sample having more males (20) than females (13) in the non-conservative treatment, and less males (16) than females (24) in the conservative treatment. Examining the correlation table (Table 4), gender has a low-level correlation with both dependent and independent variables. Therefore, the different gender ratios between the treatments are not expected to influence the analysis.

TABLE 3
Professional Accountant Demographics

Panel A: Means and Standard Deviations of Professional Responses

Variable	n	Mean	SD
Age	73	42.79	8.88
Fair value Experience (in years)	73	8.30	6.83

Panel B: Frequencies and Percentages of Professional Accountant Demographics

Variable	Response	n	Percent
Gender	Male	36	49.3%
	Female	37	50.7%
Total responses to gender question		73	

Age			
	20-24	0	0.00%
	25-29	3	4.11%
	30-34	11	15.07%
	35-39	16	21.92%
	40-44	15	20.55%
	45-49	12	16.44%
	50-54	7	9.59%
	55 +	9	12.33%
Total responses to age question		73	

Low to moderate levels of correlation exist between dependent and independent variables. The dependent variables consist participants likelihood to sell the security (SELL), asking price if they were to sell (ASK), the lowest price they would accept if they were to sell (LOW), and the likelihood they would accept a price lower than the fair value (LO_FV). The correlation table provided on Table 4, Panel A indicates that in the graduate students' dependent variable, conservative level is highly correlated with asking price (r =.703, $p \leq 0.01$). Also, graduate students have a moderate correlation level between the conservative level and the lowest price willing to accept (r = .386, $p \leq 0.01$) and the likelihood of accepting a value below

the fair value (r =.300, $p \leq 0.01$). Further, volatility is moderately correlated with selling likelihood (r =.352, $p \leq 0.01$), and has a low correlation with the lowest price willing to accept (r = -.257, $p \leq 0.01$) and the likelihood of accepting an offer less than fair value (r =.148 p = 0.099).

The correlation provided on Table 4, Panel B, indicates that for accounting professionals, the independent variable CONS has low correlation with selling likelihood (r =.103, p = 0.386) and the lowest price willing to accept (r =.253, p = 0.031). The accounting professionals also have a moderate correlation between conservative level and the asking price (.313, $p \leq 0.01$), and the likelihood to accept a price lower than the fair value (.405, $p \leq 0.01$). The independent variable, volatility, has low correlations with asking price (.215, p = 0.067), selling likelihood (r =.147, p = 0.215), lowest price willing to accept (r =.045, p = 0.071) and likelihood of accepting a value below fair value (-.094, p = 0.430). Further, gender and conservative level are correlated (-.205, p = 0.082).[10]

[10] Additional analysis are performed that include gender as covariate in the professional sample. This inclusion did not affect the output from the MANOVA and ANOVAs. Therefore, gender is not included in the models in the results section. The results are posted in Appendix B.

TABLE 4
Pearson Correlations

Panel A: Graduate Students

	CONS	VOL	SELL	ASK	LOW	LO_FV	GEN	AGE	OPT	RISK
CONS	1.000									
VOL	.023	1.000								
SELL	.037	.352***	1.000							
ASK	.703***	.009	-.031	1.000						
LOW	.385***	-.257***	-.185**	.476***	1.000					
LO_FV	.300***	.148*	.287***	-.081	-.303***	1.000				
GEN	.005	.080	-.002	-.022	-.086	.122	1.000			
AGE	-.021	-.149	-.145	-.102	.134	-.038	-.308***	1.000		
OPT	.034	-.120	-.092	-.064	-.027	-.010	-.117	.065	1.000	
RISK	-.010	.067	-.028	.096	-.111	.054	-.113	.008	-.095	1.000

Panel B: Professionals

	CONS	VOL	SELL	ASK	LOW	LO_FV	GEN	AGE	OPT	RISK
CONS	1.000									
VOL	.053	1.000								
SELL	.103	.147	1.000							
ASK	.313***	.215*	.140	1.000						
LOW	.253**	.045	.005	.639***	1.000					
LO_FV	.405***	-.094	.215*	-.044	-.229*	1.000				
GEN	-.205*	.041	.114	-.026	-.176	.022	1.000			
AGE	-.116	-.038	.106	-.126	.020	-.046	.002	1.000		
OPT	-.289**	-.092	.148	-.151	-.051	-.089	-.057	.216*	1.000	
RISK	-.038	.138	.127	.064	.026	-.201*	-.006	-.007	0.128	1.000

Panel C: Combined Sample

	CONS	VOL	SELL	ASK	LOW	LO_FV	GEN	AGE	OPT	RISK
CONS	1.000									
VOL	.030	1.000								
SELL	.064	.254***	1.000							
ASK	.534***	.094	.059	1.000						
LOW	.336***	-.145**	-.113	.537***	1.000					
LO_FV	.337***	.060	.256***	-.067	-.274***	1.000				
GEN	-.086	.075	.039	-.038	-.117	.091	1.000			
AGE	-.068	-.030	-.046	-.133*	.075	.021	.038	1.000		
OPT	-.087	-.112	.008	-.097	-.038	-.043	-.102	.039	1.000	
RISK	-.017	.092	.043	.087	-.059	-.055	-.081	-.067	.006	1.000

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility
SELL: Likelihood of selling
ASK: Asking price
LOW: Lowest price they would accept
LO_FV: Willingness to accept a price lower than the recognized fair value
GEN: Gender: 0 if male; 1 if female
AGE: Age
OPT: Optimism measure
RISK: Risk measure
*, **, *** $p \leq .10$, .05, and .01, respectively

T-tests are used to comparing graduate students' and professionals' responses test (see Table 5). The means for each of the dependent variables are not statistically different between the accounting professionals and graduate student sample. The smallest *p*-value from the *t*-test is 0.328 (asking price) supporting that responses to the independent variable questions are significantly similar between professionals and graduate students. To compare professional and graduate students, both samples are used throughout the analysis. Further, because the dependent variables are not statistically different between professionals and graduate students, this study also includes the combined sample in the analysis. The useable graduates students responses, sample S, consists of 125 participants; professional responses, sample P, contains 73 participants; and the combined responses, sample C, consists of 198 participants.

TABLE 5
Comparing Professionals and Graduate Students

Variable	Group	n	Mean	SD	*T*-test (p-value)
SELL					
	Graduate Students	124	62.258	23.645	.668
	Professionals	73	59.863	25.413	(.505)
ASK					
	Graduate Students	124	15.161	1.495	.982
	Professionals	73	14.922	1.893	(.328)
LOW					
	Graduate Students	125	12.824	1.782	-.438
	Professionals	73	12.938	1.770	(.662)
LO_FV					
	Graduate Students	125	48.080	30.893	-.629
	Professionals	73	50.960	31.365	(.530)
GEN					
	Graduate Students	112	0.313	0.466	-2.687
	Professionals	73	0.507	0.503	($\leq$.01)
AGE					
	Graduate Students	116	28.595	5.974	-13.142
	Professionals	73	42.795	8.880	($\leq$.01)

SELL: Likelihood of selling
ASK: Asking price
LOW: Lowest price they would accept
LO_FV: Willingness to accept a price lower than the recognized fair value
GEN: Gender: 0 if male; 1 if female
AGE: Age

An *a-priori* power analysis is estimated using the small, medium, and large effect sizes from Cohen (1992) in order to determine sample sizes that are necessary to detect the traditional effect sizes. These calculations are performed using G*Power software. In addition, empirical effect sizes .16 and .21 are used in the sample size calculations. These effect sizes are determined through a meta-analysis study (Bosco, Aguinis, Field, and Peirce 2015). Based on the results listed in Table 6 below, 61 participants are necessary to detect a medium effect size and 24 participants are necessary to detect a large effect size for two-tailed tests. Both graduate student and professional samples are each large enough to detect a medium effect size.

TABLE 6
***A Priori* Power Analysis**

	Effect Size	Power	Sample size
Small	.10	.80	525
Medium	.30	.80	61
Large	.50	.80	24
Average of all effect sizes in Meta	.16	.80	207
Average effect size for Performance studies	.21	.80	122

Dependent Variables

As mentioned earlier, participants were asked to respond to four dependent variables: the likelihood they would sell the securities (SELL); the initial asking price they would sell the pool of securities if they were to sell (ASK); the lowest price they would accept if they were to sell (LOW); and the willingness they would accept a price lower than the most recognized fair value (LO_FV). The variables SELL and LO_FV have a range between 0% (not sell) and 100% (definitely sell). The variables ASK and LOW have a range between $9.5 million and $18 million. Descriptive statistics for the dependent variables for each dataset and treatment are reported in Table 7.

For graduate students, volatility increases the asking price ($14.30 million to $16.1 million) and the likelihood of accepting a price below fair value (34.00% to 54.19%), while decreases the selling likelihood (55.29% to 54.33%) and the lowest price willing to accept ($12.74 million to $13.84 million) when the discretion used to arrive at the fair value is more conservative. However, when less conservative discretion is used, greater volatility decreases the likelihood of selling (54.33% to 72.00%), the asking price ($14.30 million to $13.97 million), the lowest price willing to accept ($12.74 million to $11.50 million), and the likelihood of accepting a price below the fair value (34.00% to 45.00%). When volatility is low, less conservative levels in fair value discretion increases graduate students' asking price ($14.30 million to $16.1 million) ,the lowest price willing to accept ($12.74 million to $13.84 million), and the likelihood of accepting a price lower than the fair value (34.00% to 54.19%), while decreasing the selling likelihood (55.29% to 54.33%). However, when volatility is present, as the conservative levels in fair value discretion decreases, the mean of all four dependent variables increases as indicated in Panel A of Table 7.

For accounting professionals, greater volatility increases the likelihood to sell (from 52.00% to 63.00%), the asking price ($13.55 million to $15.23 million), and lowest price willing to accept ($12.30 million to $12.78 million) when more conservative fair value assumptions are used (Small CONS treatment). However, the likelihood of accepting a value less than fair value decreases from 42.00% to 37.00%. When the conservative level used to arrive at the fair value decreases (Large CONS treatment), volatility increases the averages for lowest price willing to accept ($13.60 million to $12.28 million) and the likelihood to accept an offer below fair value (70.00% to 60.56%), but the likelihood to sell does not change. Comparing the discretion conservative level conditions, professionals have an increase in selling likelihood (52.00% to

63.89%), asking price ($13.55 million to $15.77 million), lowest price willing to accept ($12.30 million to $13.60 million), and the likelihood to accept value below fair value (42.00% to 70.00%) when volatility is low. However, when volatility increases, the likelihood to accept a value below fair value increases as the conservative level decreases (37.00% to 60.56%), but the other dependent variables remain consistent between the conservative levels. These dissimilarities among the treatment groups indicate that graduate students responded differently to the dependent variables than the professionals within each condition.

TABLE 7
Means of Dependent Variables

Panel A: Graduate Students

	SMALL CONS: Conservative	*LARGE CONS*: Non-Conservative
LOW VOLATILITY:	n = 34	n = 31
SELL	55.29%	54.33%
ASK	$14.30 million	$16.1 million
LOW	$12.74 million	$13.84 million
LO_FV	34.00%	54.19%
HIGH VOLATILITY	n = 30	n = 30
SELL	68.00%	72.00%
ASK	$13.97 million	$16.83 million
LOW	$11.50 million	$13.20 million
LO_FV	45.00%	61.00%

Panel B: Professionals

	SMALL CONS: Conservative	*LARGE CONS*: Non-Conservative
LOW VOLATILITY:	n = 20	n = 15
SELL	52.00%	63.89%
ASK	$13.55 million	$15.77 million
LOW	$12.30 million	$13.60 million
LO_FV	42.00%	70.00%
HIGH VOLATILITY	n = 20	n = 18
SELL	63.00%	63.89%
ASK	$15.23 million	$15.41 million
LOW	$12.78 million	$12.28 million
LO_FV	37.00%	60.56%

Panel C: Combined Sample

	SMALL CONS: Conservative	*LARGE CONS*: Non-Conservative
LOW VOLATILITY:	n = 54	n = 46
SELL	54.07%	57.02%
ASK	$14.08 million	$15.99 million
LOW	$12.57 million	$13.85 million
LO_FV	37.04%	57.29%
HIGH VOLATILITY:	n = 50	n = 58
SELL	66.00%	68.96%
ASK	$14.47 million	$16.02 million
LOW	$12.01 million	$13.23 million
LO_FV	41.60%	60.83%

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility
SELL: Likelihood of selling
ASK: Asking price
LOW: Lowest price they would accept
LO_FV: Likelihood of accepting a price below the recognized fair value

To determine whether the covariates, optimism and risk, are required in the model, the bivariate associations are examined from Table 4. The student sample has similar results as the professional sample. For graduate students, the correlations between optimism and selling likelihood (r = -.092, p = .705), asking price (r = -.064, p = .482), lowest price willing to accept (r = -.027, p = .763), and likelihood of accepting a price below fair value (r = -.010, p = .914) are low and insignificant. For accounting professionals, the correlations between optimism and selling likelihood (r = .148, p = .213), asking price (r = -.151, p = .202), lowest price willing to accept (r = -.051, p = .671), and likelihood of accepting a price below fair value (r = -.089, p = .455) are also low and insignificant. However, optimism has a significant correlation with the conservative level (r = -.289, p = .013) only in the accounting professional sample.

Based on the low and statistically non-significant correlations reported on Table 4, optimism is not likely a covariate. Sobel tests are performed for each path between the independent and dependent variables to determine whether optimism mediates any associations. These tests are performed using an interactive calculation tool developed by Preacher and Leonardelli (2010). This interactive tool is based on mediating measures used in prior literature (Sobel 1982; Baron and Kenny, 1986, and Goodman 1960). Regressions are estimated using the potential mediator as the dependent variable and the independent variable (CONS or VOL) as the independent variable. A second model is estimated that regresses the independent variable and potential mediating variable on the dependent variable. The coefficients and standard errors from the two models are entered into the web-based tool to provide a test statistic and *p-value*.

Sobel tests that lack significance indicate that the variable does not mediate the association between the independent and dependent variables identified in Model Tested column on Table 8. The optimism measure for the student, professional or combined samples do not

have any significant paths, the smallest *p-values* are .541, .179, and .334, respectively (Table 8, Panel A).

Based on Eisenhardt's (1989) agency theory, the hypotheses in this study assume that managers are risk averse. Nonetheless, Hoyt and Laury's (2002) risk measure was used to determine whether risk mediates the association between the independent and dependent variables. Sobel tests are performed to determine whether risk mediates the association between the dependent and independent variables. The Sobel tests indicate that risk does not mediate the association between any independent variables and dependent variables (Table 8). The smallest *p-value* in the student sample has a *p-value* of .268, which is the association between the conservative level and the lowest price willing to accept. The professional sample has a smallest *p-value* of 0.341, which is the association between volatility and the likelihood of accepting an offer lower than the fair value.

Sobel tests have been criticized for assuming normality and homoscedasticity (Hayes 2015). Therefore, Hayes' PROCESS analysis is used to determine whether mediation is present by bootstrapping the model that includes direct and indirect paths of the potential mediator to the dependent variable and then examining the confidence intervals (Preacher and Hayes 2004). These tests use the recommended 5000 replications in bootstrap mediation analyses (Bruin 2006). Table 8 reports the confidence intervals and *p-value*s for each indirect association. Significant indirect paths indicate that mediation is present. The results listed in Table 9 provide additional support that neither optimism nor risk mediate the association between the dependent and independent variables because the indirect confidence intervals are not significant in all three samples.

TABLE 8
Sobel Test Statistics

Panel A: Optimism as Mediator

Model Tested	Graduate Students Test Statistic (p-value)	Professionals Test Statistic (p-value)	Combined Test Statistic (p-value)
CONS → ASK	-.366 (.714)	.548 (.584)	.684 (.494)
CONS → SELL	-.356 (.722)	-1.345 (.179)	-.186 (.852)
CONS → LOW	-.299 (.765)	-.192 (.848)	.130 (.896)
CONS → LO_FV	-.197 (.843)	-.268 (.789)	.204 (.839)
VOL → ASK	.610 (.541)	.641 (.521)	.965 (.334)
VOL → SELL	.568 (.570)	-.677 (.498)	-.049 (.624)
VOL → LOW	.560 (.549)	.349 (.727)	.693 (.489)
VOL → LO_FV	-.091 (.927)	.565 (.572)	.419 (.675)

Panel B : Risk as Mediator

Model Tested	Graduate Students Test Statistic (p-value)	Professionals Test Statistic (p-value)	Combined Test Statistic (p-value)
CONS → ASK	-.111 (.912)	-.287 (.774)	-1.348 (.178)
CONS → SELL	.104 (.917)	-.305 (.760)	-.059 (.555)
CONS → LOW	1.107 (.268)	-.220 (.826)	.756 (.449)
CONS → LO_FV	-.109 (.913)	.312 (.755)	.690 (.490)
VOL → ASK	.060 (.546)	.284 (.776)	.833 (.405)
VOL → SELL	-.437 (.662)	.723 (.470)	.298 (.766)
VOL → LOW	-.608 (.543)	.134 (.870)	-.568 (.570)
VOL → LO_FV	.415 (.678)	-.952 (.341)	-.700 (.484)

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility
SELL: Likelihood of selling
ASK: Asking price
LOW: Lowest price they would accept
LO_FV: Likelihood of accepting a price below the recognized fair value

TABLE 9

Bootstrap Confidence Interval Tests for Mediation: Indirect Effects Reported

Panel A: Optimism as Mediator

Model Tested	Graduate Students		Professionals		Combined	
Confidence Interval	Lower-bound	Upper-bound	Lower-bound	Upper-bound	Lower-bound	Upper-bound
CONS → ASK	-.084	.044	-.249	.377	-.035	.076
CONS → SELL	-1.165	1.290	-8.462	.983	-.904	.905
CONS → LOW	-.071	.058	-.371	.215	-.055	.061
CONS → LO_FV	-1.374	.946	-5.869	4.396	-.974	1.204
VOL → ASK	-.052	.122	-.104	.274	-.025	.121
VOL → SELL	-.886	1.970	-3.472	1.674	-1.242	.780
VOL → LOW	-.056	.154	-.123	.146	-.035	.106
VOL → LO_FV	-2.103	1.574	-2.269	3.631	-1.076	1.523

Panel B: Optimism as Mediator: Testing for Mediated Moderator

Model Tested	Graduate Students		Professionals		Combined	
Confidence Interval	Lower-bound	Upper-bound	Lower-bound	Upper-bound	Lower-bound	Upper-bound
CONS*VOL → ASK	-.104	.103	-.112	.440	-.073	.144
CONS*VOL → SELL	-.958	3.061	-7.570	1.061	-2.203	1.291
CONS*VOL → LOW	-.131	.156	-.222	.269	-.093	.127
CONS*VOL → LO_FV	-3.376	1.820	-3.678	6.309	-2.155	2.320

Panel B : Risk as Mediator

Model Tested	Graduate Students		Professionals		Combined	
Confidence Interval	Lower-bound	Upper-bound	Lower-bound	Upper-bound	Lower-bound	Upper-bound
CONS → ASK	-.101	.055	-.139	.094	-.080	.042
CONS → SELL	-1.11	.951	-3.051	1.458	-.835	.533
CONS → LOW	-.095	.108	-.153	.072	-.040	.050
CONS → LO_FV	-1.513	1.169	-2.390	4.349	-.719	.967
VOL → ASK	-.030	.145	-.092	.204	-.016	.119
VOL → SELL	-1.432	.851	-1.179	3.629	-.693	1.007
VOL → LOW	-.154	.043	-.139	.170	-.097	.038
VOL → LO_FV	-.741	2.209	-7.400	1.154	-1.771	.702

Panel C: Risk as Mediator: Testing for Mediated Moderator

Model Tested	Graduate Students		Professionals		Combined	
Confidence Interval	Lower-bound	Upper-bound	Lower-bound	Upper-bound	Lower-bound	Upper-bound
CONS*VOL → ASK	-.0474	.103	-.0921	.186	-.026	.092
CONS*VOL → SELL	-1.460	1.046	-1.482	3.606	-.634	1.116
CONS*VOL → LOW	-.176	.077	-.165	.120	-.121	.030
CONS*VOL → LO_FV	-1.034	2.120	-5.673	2.726	-1.580	.7882

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility
CONS*VOL: indicates moderator for conservative and volatility
SELL: Likelihood of selling

ASK: Asking price
LOW: Lowest price they would accept
LO_FV: Likelihood of accepting a price below the recognized fair value

Tests of Hypotheses

In this study, the dependent variables, asking price (ASK) and the lowest amount willing to accept (LOW), have the same dollar amount scale ($9.5 million to $18 million), and the likelihood to sell (SELL) and the likelihood to accept an offer below the recognized fair value (LO_FV) have the same percentage scale (0% to 100%). When performing MANOVA, if the dependent variables were highly correlated with each other, then the results can be vulnerable to multicollinearity (Leech et al. 2011). Therefore, the dependent variables need to be moderately correlated with each other. According to Tybout et al. (2001), correlation levels should be approximately within 0.3 to 0.7 in order to be included in MANOVA. The asking price (ASK) and lowest price willing to accept (LOW) are moderately correlated for graduate students (r = .514), professionals (r = 0.639), and the combined sample (r = 0.564), and can be used together in the MANOVA. The correlation level for selling likelihood and the likelihood of accepting a value below the fair value is considerably low for professionals (r = 0.215) and for the combined sample (r = 0.267). The graduate student sample correlation is r = 0.314, slightly surpassing the r = 0.300 threshold established by Tybout et al. (2001). To keep the analysis consistent among the three samples, ANOVA's are estimated for likelihood to sell (SELL) and the likelihood to accept an offer below the fair value (LO_FV) rather than a MANOVA.

The first hypothesis states that Level 3 fair value assets and liabilities that use less conservative assumptions will cause managers to have a higher asking price if they were to sell the security than if the fair value measure used more conservative assumptions. Accounting professionals' average for asking price (ASK) when more conservative assumptions are used is

$14.39 million while less conservative assumptions has an average of $15.57 million. Graduate students' average asking price is $14.15 million for more conservative assumptions and $16.24 million for less conservative assumptions, respectively. The combined sample yields an average asking price of $14.24 million and $16.00 million for more and less conservative assumptions, respectively. Hypothesis one is tested using a MANOVA with asking price and low price as dependent variables. The results reported in Table 10 support the contention that conservative assumptions (CONS) influence the asking price when selling Level 3 fair value securities. There is statistically significant difference in selling decisions based on the conservative assumptions for graduate students ($p \leq .01$, Wilks' $\lambda = .495$), professionals ($p \leq .01$, Wilks' $\lambda = .884$), and the combined sample ($p \leq .01$, Wilks' $\lambda = .709$).

TABLE 10
Asking price Means and lowest price willing to accept Multivariate Analysis of Variance (MANOVA)

Panel A: Graduate Students Asking Price Means

	More Conservative (Small CONS)	Less Conservative (Large CONS)	*T*-test
Low VOL	$14.30 million	$16.10 million	-6.417 ***
High VOL	$13.97 million	$16.83 million	-9.179 ***
T-test	1.372	-.968	

Panel B: Graduate Students MANOVA

Multivariate					**Univariate**	
Effect	**Wilks' λ**	**df**	**F-value**	**Sig.**	**ASK F-value**	**LOW F-value**
Model	.450	3	19.47	≤ .01	40.81***	11.79***
CONS	.495	1	60.80	≤ .01	120.71***	24.33***
VOL	.917	1	5.38	.058	.02	10.87***
CONS *VOL	.974	1	1.56	.214	2.67	1.10

Panel C: Professionals Asking Price Means

	More Conservative (Small CONS)	Less Conservative (Large CONS)	*T*-test
Low VOL	$14.30 million	$16.10 million	-.282
High VOL	$13.97 million	$16.83 million	-4.664 ***
T-test	-3.191 ***	.578	

Panel D: Professionals MANOVA

Multivariate					Univariate	
Effect	**Wilks' λ**	**df**	**F-value**	**Sig.**	**ASK F-value**	**LOW F-value**
Model	.768	3	3.19	$\leq$ .01	6.14***	1.94
CONS	.884	1	4.44	$\leq$ .01	8.76***	4.91**
VOL	.950	1	1.81	.172	2.63	.04
CONS *VOL	.910	1	3.36	.041	6.32**	.96

Panel E: Combined Sample Asking Price Means

	More Conservative (Small CONS)	Less Conservative (Large CONS)	*T*-test
Low VOL	$14.30 million	$16.10 million	-7.867***
High VOL	$13.97 million	$16.83 million	-4.956***
T-test	-1.641	-.094	

Panel F: Combined Sample MANOVA

Multivariate					Univariate	
Effect	**Wilks' λ**	**df**	**F-value**	**Sig.**	**ASK F-value**	**LOW F-value**
Model	.666	3	14.42	$\leq$ .01	26.84***	10.24***
CONS	.709	1	39.74	$\leq$ .01	77.04***	25.99***
VOL	.945	1	5.64	$\leq$ .01	1.38	5.39**
CONS *VOL	.992	1	.82	.441	1.08	.00

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility
ASK: Asking price
LOW: Lowest price they would accept
*, **, *** $p \leq$ .10, .05, and .01, respectively

ANOVA tests are examined to determine whether one dependent variable was causing the outcomes in the MANOVA test. The results in Table 10 indicate that the conservative level discretion significantly influences asking price for graduate students (*F*-statistic= 120.71, $p \leq$ .01), professionals (*F*-statistic= 8.76, $p \leq$ .01), and the combined sample (*F*-statistic= 77.04, $p \leq$ .01). The ANOVA also indicates that the lowest price graduate students are willing to accept is

influenced by the conservative level (F-statistic= 24.33, $p \leq .01$) and the volatility level (F-statistic= 10.87, $p \leq .01$). Professionals' lowest price willing to accept is only influenced by the conservative level (F-statistic= 4.91, $p = .030$). [11]

Further, the results posted on Table 10 show an interaction exists in the professional sample between conservative level and volatility for asking price (F-statistic= 6.32, $p \leq .01$). The means of the asking price for professionals and graduate students are illustrated in Figure 2 and 3, respectively.

[11] Additional analysis are performed in the Supplemental Analysis section that examine the difference between the asking price and the recognized fair value to determine whether conservative level or the values influenced the asking price.

Figure 2: Professionals' Average Asking Price

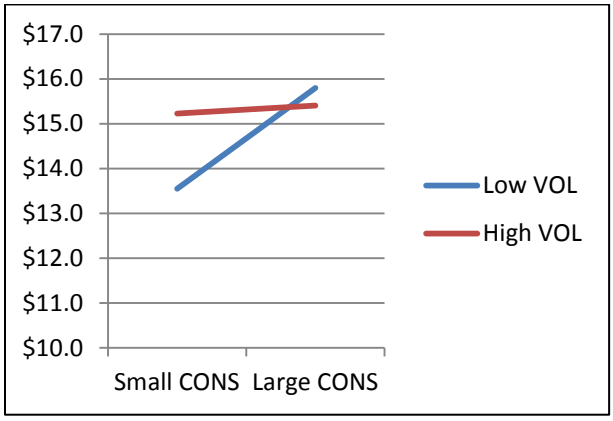
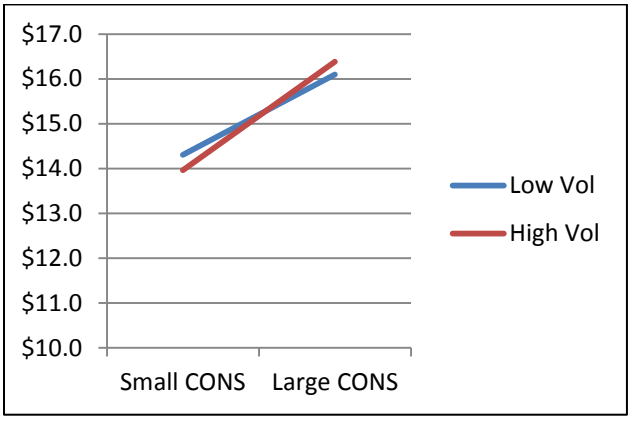


Figure 3: Graduate Students' Average Asking Price



The significant interaction suggests that greater volatility likely causes managers to believe that the fair value will change in the opposite direction, or mean reversion. Mean reversion (Barberis, Shleifer, and Vishny 1998) is the phenomenon that individuals will expect that values that increase will eventually decrease. This means that managers are likely to view the more conservative fair valuation as a low value and consequently will expect the fair value to increase, thus resulting in managers to increase their asking price from the recognized fair value. However, mean reversion contends that if a value is high, then individuals will expect a decrease in value. Conversely, firms that have historically volatile Level 3 fair values along with less conservative fair valuation policies, mean reversion theory suggests that manager expectations of the Level 3 fair value should decrease. This creates an environment for managers' to want to sell quickly, and therefore accept a lower price, before the fair valuation decrease occurs.

The second hypothesis states that manager's willingness to sell the Level 3 fair value securities is greater when more conservative assumptions are used than when less conservative assumptions are used. Graduate students are 63.71% likely to sell when less conservative assumptions are used, and 61.41 % likely to sell when more conservative assumptions are used.

Accounting professionals, on average, are 57.5% likely to sell when more conservative fair value discretion is used, and 62.73% likely to sell when less conservative discretion is used (Reported in Panel C, Table 11).

The combined sample has an average selling likelihood of 59.90% when discretion arrives at more conservative valuations and 63.01% when discretion provides less conservative fair valuation. Thus, on average, participants are more likely to sell Level 3 fair value securities when less conservative discretion is used to arrive at the most recent fair value. The ANOVA estimates in Table 11 do not support the contention that the discretion conservative level (CONS) significantly influences the likelihood to sell the security (Graduate students F =.11, p = .740; Professionals F= .73, p = .394; and the combined sample F = .630, p = .429). Thus, these results fail to support the hypothesis two. This unexpected result is further investigated in the supplemental analysis section.

TABLE 11
Selling Likelihood (SELL) Means and Analysis of Variance (ANOVA)

Panel A: Graduate Students Selling Likelihood Means

	More Conservative (Small CONS)	Less Conservative (Large CONS)	*T*-test
Low VOL	55.29%	54.33%	.165
High VOL	68.00%	72.00%	-.648
T-test	-2.331**	-2.988***	

Panel B: Graduate Students ANOVA

Source	Sum of Squares	df	Mean Square	F-statistic	Two-Tailed p-value
CONS	56.578	1	56.578	.11	.740
VOL	7285.668	1	7285.668	14.27	$\leq$.01
CONS*VOL	165.466	1	165.466	.32	.570
Error	61280.392	120	510.670		

Panel C: Professional Selling Likelihood Means

	More Conservative (Small CONS)	Less Conservative (Large CONS)	*T*-test
Low VOL	55.29%	54.33%	-.964
High VOL	68.00%	72.00%	-.122
T-test	-1.292	-.310	

Panel D: Professionals ANOVA

Source	Sum of Squares	df	Mean Square	F-statistic	Two-Tailed p-value
CONS	470.222	1	470.222	.73	.394
VOL	826.889	1	826.889	1.28	.263
CONS*VOL	320.889	1	320.889	.49	.481
Error	44741.11	69	648.422		

Panel E: Combined Sample Selling Likelihood Means

	More Conservative (Small CONS)	Less Conservative (Large CONS)	*T*-test
Low VOL	55.29%	54.33%	-.051
High VOL	68.00%	72.00%	-.615
T-test	-2.572***	-2.557***	

Panel F: Combined Sample ANOVA

Source	Sum of Squares	df	Mean Square	F-statistic	Two-Tailed p-value
CONS	351.000	1	351.000	.63	.429
VOL	7308.925	1	7308.925	13.03	$\leq$.01
CONS*VOL	.337	1	.337	.00	.980
Error	107729.62	193	558.185		

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility
*, **, *** $p \leq .10, .05$, and .01, respectively

Hypothesis three states that managers are more likely to accept an offer below the recognized fair value when less conservative discretion is used than when more conservative discretion is used. Respondents were asked to rate the likelihood they would sell the security on scale of 0% (will not sell) to 100% (will sell). The means, reported in Panel A of Table 12, show that when less conservative discretion is used, professionals are more likely to accept a price below fair value (67.85%) than when more conservative discretion is used (39.50%). Further, graduate students and the combined the sample are more likely to accept a price below fair value when less conservative fair values are used (57.54% and 60.11%, respectively) than when more conservative fair values are used (39.06%, 57.54%, respectively).

ANOVAs are estimated using the likelihood of accepting an offer below fair value as the dependent variable and the conservative discretion level and volatility as the independent

variables. The results in Panel B, C, and D in Table 12 show that conservative discretion level significantly influences the likelihood to sell below fair value ($p \leq .01$ in all three samples). Providing support for hypothesis three that as conservativism decreases, the likelihood to accept an offer below fair value increases.

TABLE 12
Likelihood to Sell below the Recognized Fair Value

Panel A: Average Likelihood to Sell below Recognized Fair Value

	More Conservative	Less Conservative	*t*-test	Two-Tailed p-value
Students	39.06%	57.54%	-3.490	≤.01
Professionals	39.50%	64.85%	-3.732	≤.01
Combined	39.23%	60.11%	-5.001	≤.01

Panel B: Graduate Students ANOVA

Source	Sum of Squares	df	Mean Square	F-statistic	Two-Tailed p-value
CONS	10329.3483	1	10329.3483	11.77	≤.01
VOL	2347.0516	1	2347.0516	2.70	.103
CONS*VOL	109.141	1	109.141	.13	.724
Error	105195.035	121	869.380		

Panel C: Professionals ANOVA

Source	Sum of Squares	df	Mean Square	F-statistic	Two-Tailed p-value
CONS	11960.889	1	11960.889	14.17	≤.01
VOL	938.889	1	938.889	1.11	.295
CONS*VOL	88.889	1	88.889	.11	.747
Error	58324.444	69	843.977		

Panel D: Combined Sample ANOVA

Source	Sum of Squares	df	Mean Square	F-statistic	Two-Tailed p-value
CONS	21283.645	1	21283.675	24.66	≤.01
VOL	451.147	1	451.147	.52	.471
CONS*VOL	116.791	1	116.791	.14	.713
Error	167445.027	194	863.119		

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility

Logistic regressions are estimated to examine how the conservative level of discretion used to determine the Level 3 fair value securities influences the selling likelihood when an offer is below the recognized fair value (Panel A, B, and C of Table 13) . The dependent variable is

the dichotomized likelihood of selling below fair value. The variable is coded 0 if the likelihood to sell is less than 50%, and coded 1 if the greater than 50%. Responses that are equal to 50% are not included in the analysis. The model using the professional sample indicates that the dependent variables, conservative level (CONS) and volatility (VOL) significantly predict whether or the participant would sell the Level 3 fair value security at a price below fair value (χ^2 = 16.972, *df* = 3, $p \leq .01$). Consistent with hypothesis 3, the main effect for conservative level is positive and significant ($p = .013$).This suggests that as the conservative level decreases, the odds of selling Level 3 fair value securities below the recognized fair value increases by 18.333 times. The model using the graduate student sample ($\chi^2 = 9.921$, *df* = 3, $p = .019$) and the combined sample ($\chi^2 = 18.214$, *df* = 3, $p \leq 0.01$) are also significant with a positive and significant main effect for the conservative level ($p = .050$, and $\leq .01$, respectively), consistent with hypothesis 3. These results indicate that the odds of graduate students and the combined sample selling Level 3 fair value securities below the recognized fair value, increases 3.143 and 4.170 times, respectively, as conservativism decreases.

TABLE 13
Logistic regression using sell under the lowest fair value as the dependent variable

Panel A: Graduate Students Logistic Regression

Source	B	SE	Odds Ratio	Two-Tailed p-value
CONS	1.145	.585	3.143	.050
VOL	1.071	.580	2.918	.065
CONS*VOL	-.483	.804	.617	.548
Constant	-1.145	.434	.318	.008

Panel B: Professionals Logistic Regression

Source	B	SE	Odds Ratio	Two-Tailed p-value
CONS	2.909	1.165	18.333	.013
VOL	-.349	.731	.705	.633
CONS*VOL	-.942	1.405	.390	.503
Constant	-.606	.508	.545	.232

Panel C: Combined Sample Logistic Regression

Source	B	SE	Odds Ratio	Two-Tailed p-value
CONS	1.428	.471	4.170	$\leq$.01
VOL	.526	.447	1.692	.239
CONS*VOL	-.294	.649	.745	.650
Constant	-.932	.327	.394	.004

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility

The last hypothesis argues that (A) greater volatility will result in a lower asking price than the most recent recognized fair value, and (B) lower volatility will cause the asking price to increase from the most recent recognized fair value. The most recent recognized fair value for that use more conservative discretion treatments (Small CONS) was $13 million, and those that use less conservative discretion treatments (Large CONS) was $16 million. Table 14 reports the results of these tests that examines whether the asking price is significantly different from the most recent recognized fair value in each manipulation.

Graduate students' asking price increases from the recognized fair value of $16 million when less conservative discretion is used when volatility is low ($16.10 million, $p = .671$). Further, when more conservative discretion is used, graduate students' increase their asking price from $13 million to $14.31 million ($p \leq .01$) when volatility is low. The results the student sample provide partial support for part B of hypothesis four that less volatility will result in asking prices greater than the recognized fair value. These results also fail to provide support for part A of hypothesis four that greater volatility will lead to a decreased asking price. The student sample finds that high volatility significantly increases the asking price in both conservative treatments as opposed to decreasing the price as predicted (Small CONS = $13.97 million, $p \leq .01$; Large CONS = $16.38 million, $p = .039$).These results fail to support part A of hypothesis four.

Professionals' asking price when volatility is low is increases from the most recent fair value in both conservative treatments (Small CONS average $13.55 million, $p = .132$; Large CONS average $15.77 million, $p = .432$). However, the increase in the more conservative condition is not statistically different from the most recent recognized fair value and thus does not support part B of hypothesis four. Further, in when more conservative discretion is used (Small CONS), the increased volatility results in an asking price increase (from $13.55 million to $15.23 million), yet greater volatility decreases the asking price when less conservative discretion is used (Large CONS), from $15.77 million to $15.41 million. Though this increase is not significantly different from the $16 million recognized fair value ($p = .266$). Interestingly, high volatility significantly increases the asking price for more conservative fair values ($15.23 million; $p \leq .01$), failing to support part A of hypothesis four.

When less conservative discretion is used, the risk from volatility causes professionals to decrease their asking price. However, professionals increase their asking price when discretion that is more conservative is used to arrive at the fair value. This result may be attributed to motivated reasoning. As the fair value recognized and uncertainty from the volatility increases, managers are unable to justify that the value is a true representation of the underlying security and thus adjust their asking price.

In summary, the graduate students do not support hypothesis four part A, more volatility decreases asking prices, and provide partial support for part B that less volatility increases asking prices. Accounting professionals did decrease their asking price when the securities have greater volatile Level 3 fair values when less conservative discretion is used, although the decrease is not significant. However, when more conservative discretion is used, the asking price increases. Thus, failing to support part A of hypothesis four. Further, professionals decrease their asking price when lower volatility is present when less conservative discretion is used but increase their

asking price when less conservative discretion is used. However, the asking price increase is not significant, failing to support part B of hypothesis four. These results are further explored in the supplemental analysis section.

TABLE 14
Comparing Asking Price Means to Most Recent Recognized Fair Value

Panel A: Graduate Students

	Small CONS ($13 million) Mean (Test statistic)	Large CONS ($16 million) Mean (Test statistic)
Low VOL	$14.31 million (8.211***)	$16.10 million (.429)
High VOL	$13.97 million (4.966 ***)	$16.83 million (2.162**)

Panel B: Professionals

	Small CONS ($13 million) Mean (Test statistic)	Large CONS ($16 million) Mean (Test statistic)
Low VOL	$13.55 million (1.573)	$15.77 million (-.810)
High VOL	$15.23 million (5.684 ***)	$15.41 million (-1.151)

Panel C: Combined Data: Professionals plus Graduate Students

	Small CONS ($13 million) Mean Test statistic	Large CONS ($16 million) Mean Test statistic
Low VOL	$14.03 million (6.064***)	$15.99 million (-.061)
High VOL	$14.47 million (6.931 ***)	$16.02 million (.723)

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility
*, **, *** $p \leq .10, .05$, and .01, respectively

Supplemental Analysis

The supplemental analyses further assess the impact of the assumptions used in the hypotheses and attempt to explain the unexpected results. The results from the hypotheses tests suggest that the conservative levels and volatility affect managers' selling decisions. However,

the results for hypothesis four provide unanticipated results. When volatility is present, the asking price increases significantly from the recognized fair value when more conservative discretion is used (Small CONS) for all three samples, and when less conservative discretion is used (Large CONS) only for graduate students. When the historical volatility is low, graduate students and the combination sample increases their asking price rather than decrease as predicted.

To determine whether participants considered volatility when making selling decisions, the post-experimental debriefing questions are examined. Participants were asked to indicate whether the level of items within the case influenced their selling decisions. These questions include: (1) the conservative level, (2) the volatility, (3) the original purchase price, (4) the current fair value, (5) the accounting treatment of fair value accounting, and (6) the highest past recognized fair value. Each question requested that respondents indicate their level of agreement on a scale from 1 (strongly disagree) to 7 (strongly agree) regarding whether that criteria was used in their decision-making.

To examine the influences on asking price decisions, Preacher and Hayes' PROCESS analysis is used to determine whether participants' opinions mediated the association between the independent variables and asking price. Bootstrapping using 5000 replications is performed for the model that includes direct and indirect paths of the potential mediator to dependent variable. Table 15 reports the confidence intervals and *p-value*s for each indirect association. If zero is not between the confidence interval of the indirect paths, then mediation is present. In addition, mediated moderated models are tested that use the interaction of the two dependent variables (CONS and VOL), post experimental items as the mediator and the asking price and selling likelihood as the dependent variable. This test is performed because assumptions used to arrive at the fair value affect both conservative level and volatility of the recognized fair value.

The results shown in Table 15 indicate that the post-experimental items fail to explain the associations between the dependent variables and asking price. Most importantly, the post experimental items show that participants' did not perceive the historical volatility as important when making selling-decisions, contrary to the expectations hypothesized.

The results from hypothesis two indicate that both graduate students and professionals are more likely to sell the security when less conservative discretion is used opposed to when more conservative discretion is used. Preacher and Hayes confidence interval bootstrap method was employed to determine whether participants opinions mediated the association between the dependent variables and likelihood of selling the Level 3 fair value security. The results posted on Panel C, Table 15 show that the participants' opinions do not mediate the associations between the likelihood to sell the Level 3 fair value security and the dependent variables because all indirect results have confidence intervals that contain zero.

TABLE 15
Post-Experimental Items Bootstrap Confidence Interval Tests for Mediation
Indirect Effects Results Reported

Panel A: Asking Price as Dependent Variable

Model Tested	**Graduate Students**		**Professionals**		**Combined**	
Confidence Interval	Lower-bound	Upper-bound	Lower-bound	Upper-bound	Lower-bound	Upper-bound
CON_OP & CONS	-.063	.044	-302	.142	-.083	.029
CON_OP & VOL	-.082	.087	-.106	.127	-.406	.053
VOL_OP & CONS	-.049	.070	-.142	.230	-.042	.035
VOL_OP & VOL	-.062	.233	-.100	.242	-.069	.072
HIST_OP & CONS	-.089	.036	-.116	.084	-.070	.030
HIST_OP & VOL	-.051	.093	-.144	.134	-.036	.038
ACT_OP & CONS	-.054	.076	-.306	.073	-.082	.027

ACT_OP & VOL	-.072	.091	-.127	.167	-.033	.043
CUR_OP & CONS	-.109	.083	-.432	.109	-.145	.022
CUR_OP & VOL	-.148	.062	-.134	.169	-.073	.051
PAS_OP & CONS	.028	.167	-.258	.063	-.073	.042
PAS_OP & VOL	-.162	.116	-.106	.156	-.035	.085

Panel B: Asking Price as Dependent Variable: Mediated Moderator Model

Model Tested	**Graduate Students**		**Professionals**		**Combined**	
Confidence Interval	Lower-bound	Upper-bound	Lower-bound	Upper-bound	Lower-bound	Upper-bound
CON_OP & CON*VOL	-.046	.078	-250	.213	-.052	.052
VOL_OP & CON*VOL	-.056	.138	-.151	.207	-.060	.045
HIST_OP & CON*VOL	-.090	.093	-.116	.126	-.059	.048
ACT_OP & CON*VOL	-.056	.145	-.184	.168	-.068	.056
CUR_OP & CON*VOL	-.222	.051	-.191	.169	-.130	.046
PAS_OP & CON*VOL	-.094	.205	-.171	.122	-.035	.085

Panel C: Selling Likelihood as Dependent Variable

Model Tested	**Graduate Students**		**Professionals**		**Combined**	
Confidence Interval	Lower-bound	Upper-bound	Lower-bound	Upper-bound	Lower-bound	Upper-bound
CON_OP & CONS	-.928	1.267	-1.139	4.920	-.506	1.233
CON_OP & VOL	-1.977	.645	-2.392	2.494	-1.154	.476
VOL_OP & CONS	-961	.931	-1.814	2.208	-.578	.582
VOL_OP & VOL	-3.012	1.220	-1.375	1.785	-1.538	.541
HIST_OP & CONS	-.653	2.757	-1.366	3.114	-.346	1.825
HIST_OP & VOL	-.707	1.762	-3.097	1.928	-582	1.219
ACT_OP & CONS	-.882	2.543	-2.401	2.530	-752	1.481
ACT_OP & VOL	-1.263	1.394	-1.348	2.339	-.567	.931
CUR_OP & CONS	-1.371	.974	-3.401	2.158	-1.197	.766
CUR_OP & VOL	-1.691	.881	-1.324	2.357	-.556	.661
PAS_OP & CONS	-2.255	.668	-2.052	3.057	-1.420	.468
PAS_OP & VOL	-.967	1.231	-2.712	1.499	-.576	.737

Panel D: Selling Likelihood as Dependent Variable: Mediated Moderator Model

Model Tested	**Graduate Students**		**Professionals**		**Combined**	
Confidence Interval	Lower-bound	Upper-bound	Lower-bound	Upper-bound	Lower-bound	Upper-bound
CON_OP & CON*VOL	-1.365	.992	-.896	6.092	-.585	1.278
VOL_OP & CON*VOL	-1.821	1.495	-1.835	1.803	-1.074	.632
HIST_OP & CON*VOL	-.828	2.689	-1.963	3.216	-.382	1.909
ACT_OP & CON*VOL	-1.543	2.569	-1.838	2.589	-.972	1.488
CUR_OP & CON*VOL	-2.643	1.131	-1.386	2.722	-1.121	.792
PAS_OP & CON*VOL	-2.21	.792	-2.283	2.492	-1.231	.471

CON_OP: opinion of whether the conservatism affected decisions
VOL_OP: opinion of whether volatility affected decisions

HIST_OP: opinion of whether the historic cost affected decisions
ACCT_OP: opinion of whether the accounting for fair value affected decisions
CURR_OP: opinion of whether the current fair value affected decisions
PAST_OP: opinion of whether the highest past fair value affected decisions
CON: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility

In order to determine whether the conservative level influenced selling choices and not the numeric values, the absolute value of the difference between the asking price and the recognized fair value is the dependent variable in an ANOVA with the conservative level and volatility as the independent variables. The ANOVA tests, on Panel B of Table 15, indicate that the conservative level of the discretion used influences graduate students' departure from the recognized fair value when determining an asking price ($F = 21.90$, $p \leq .01$). Panel A of Table 15 shows that graduate students' asking price changes more when more conservative discretion is used, from $1,367,000 to $966,667 when volatility is low and decreases from $1,067,000 to $783,333 when volatility is high.

The results in Panel C and D, Table 16 show that the difference between the asking price and the recognized fair value is affected by the discretion used to determine the fair value ($F = .3.03$, $p = .086$) and volatility ($F = 6.61$, $p \leq .01$). These results suggest that accounting professionals' asking price departs from their reference point, the recognized fair value, when selling a Level 3 fair value security based on the amount of discretion used to determine the fair value and the historical volatility. These results possibly explain why volatility did not influence professionals' asking price in the main results section. The historical volatility pattern affects the difference between the asking price and the recognized fair value rather than the asking price as hypothesized.

Table 16
Absolute Difference between Asking Price and Recognized Fair Value

Panel A: Graduate Student Difference Means

	More Conservative (Small CONS)	Less Conservative (Large CONS)	*T*-test
Low VOL	$1,367,000	$966,667	1.931 *
High VOL	$1,067,000	$783,333	1.318
T-test	1.338	.944	

Panel B: Graduate Student ANOVA

Source	Sum of Squares	df	Mean Square	*F*-statistic	Two-Tailed *p*-value
Model	28.533	3	9.511	8.39	$\leq$.01
CONS	24.819	1	24.819	21.90	$\leq$.01
VOL	.027	1	.027	.02	.878
CONS*VOL	3.023	3	3.023	2.67	.105
Error	136.016	120	1.133		

Panel C: Professional Difference Means

	More Conservative (Small CONS)	Less Conservative (Large CONS)	*T*-test
Low VOL	$550,000	$233,000	.915
High VOL	$2,225	$594,000	1.527
T-test	-2.455**	-1.231	

Panel D: Professionals ANOVA

Source	Sum of Squares	df	Mean Square	*F*-statistic	Two-Tailed *p*-value
Model	21.116	3	7.039	3.50	.020
CONS	6.096	1	6.096	3.03	.086
VOL	13.304	1	13.304	6.61	$\leq$.01
CONS*VOL	1.267	1	1.267	0.63	.430
Error	138.917	69	2.013		

Panel E: Combined Sample Difference Means

	More Conservative (Small CONS)	Less Conservative (Large CONS)	*T*-test
Low VOL	$1,287,037	$922,222	1.967*
High VOL	$1,550,000	$1,025,000	2.045**
T-test	-1.113	-.480	

Panel D: Combined Sample ANOVA

Source	Sum of Squares	df	Mean Square	*F*-statistic	Two-Tailed *p*-value
Model	11.468	3	3.823	3.01	.031
CONS	9.706	1	9.706	7.66	$\leq$.01
VOL	1.640	1	1.640	1.29	.257
CONS*VOL	.315	1	.315	.25	.619
Error	244.714	196	1.307		

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility
*, **, *** $p \leq .10$, .05, and .01, respectively

***Post hoc* Test**

Post hoc Tukey tests were performed in order to determine which treatments significantly differ from each other if interactions were significant in the hypotheses tests. In particular, this Tukey test determines whether the results from the hypotheses tests support the contention that accounting professionals' asking price when selling Level 3 fair value securities are significantly impacted by the conservative level and volatility interaction that was identified in the professional sample and previously illustrated in Figure 2. According to the Tukey test on Panel A of Table 17, professionals' asking price to sell Level 3 fair value securities that use more conservative assumptions (small CONS) and have stable realized fair values (Low VOL) are statistically significantly different from the asking price in all other conditions ($p \leq$ .01). Furthermore, when less conservative discretion is used (Large CONS), the asking price difference in low volatility and high volatility lacks statistical significance (p = .905).

The Tukey test using graduate students, on Table 17, Panel B, indicates that when more conservative discretion is used (Small CONS) the asking price is statistically different from conditions in which less conservative is used (Large CONS) when both high volatility ($p \leq$.01)

and low volatility ($p \leq .01$) is present. In summary, the supplemental analysis shows that graduate students and professionals use different information when making selling decisions regarding Level 3 fair securities.

TABLE 17
Post Hoc Tukey Tests for Significant Interactions

Panel A: Professional sample and Asking Price as Dependent Variable

Condition	Tested with Condition	Mean difference	Sig.
Small CONS and Low VOL	Small CONS and High VOL	-1.67	≤.01
	Large CONS and High VOL	-1.86	≤.01
	Large CONS and Low VOL	-2.24	≤.01
Small CONS and High VOL	Large CONS and High VOL	-.18	.988
	Large CONS and Low VOL	-.57	.739
Large CONS and High VOL	Large CONS and Low VOL	-.39	.905

Panel B: Graduate student sample and Asking Price as Dependent Variable

Condition	Tested with Condition	Mean difference	Sig.
Small CONS and Low VOL	Small CONS and High VOL	.34	.576
	Large CONS and High VOL	-2.07	≤ 0.01
	Large CONS and Low VOL	-1.79	≤ 0.01
Small CONS and High VOL	Large CONS and High VOL	-2.42	≤ 0.01
	Large CONS and Low VOL	-2.13	≤ 0.01
Large CONS and High VOL	Large CONS and Low VOL	.28	.732

CONS: Independent variable: 0 for more conservative and 1 less conservative assumption used
VOL: Independent variable: 0 for low volatility and 1 for high volatility

V. SUMMARY, LIMITATIONS, AND FUTURE RESEARCH

This dissertation examines how Level 3 fair value accounting affects investing decision-making in order to acquire an understanding of the behavioral issues related to the discretion permitted for Level 3 fair value assets and liabilities. Extant scholarship supports the notion that fair value provides relevant information at the organizational level (e.g., Dechow et al. 2010; Song et al. 2010; and Barth and Taylor 2010). Yet, few studies examine fair value accounting from a behavioral level (e.g., Chen et al. 2012; and Mildbradt 2012). Further, research has not examined the impact of fair value discretion on Level 3 fair value securities selling decisions.

Using a case scenario, this study determines that when managers make selling decisions, the conservative level of the assumptions made to arrive at the fair value affects both their asking price and the lowest price they are willing to accept to sell the fair value asset. In addition, the conservative level and the historical volatility interact when professionals determine asking prices. Managers are more likely to sell a Level 3 fair value security when less conservative discretion is used. Yet, the likelihood of selling is not statistically different when more conservative discretion is used. This study also provides support that both graduate students and professionals are more likely to accept an offer that is below the recognized fair value when less discretion is used. Further, this study provides support that less volatility increases the asking price when more conservative discretion is used, but this effect is only significant for the graduate student sample. Lastly, greater volatility decreases professionals' asking price when less conservative but the decrease is not statistically different from the recognized fair value.

Post hoc tests provide evidence that, when selecting an asking price, managers consider volatility when determining an asking price under the consideration of the departure from the recognized fair value. Managers do consider volatility coupled with the conservative level of the discretion used when selecting the asking price. However, the overall results of this study indicate that managers do not consider the volatility alone when determining the selling likelihood or the asking price. Thus, volatility, or uncertainty, is not the foremost consideration when making selling decisions but rather the discretion conservative level has more consideration in Level 3 fair value security selling decisions.

This study also provides evidence that fair value provides relevant information to managers when determining an asking price and is therefore is an important component in the selling-decision processes. Graduate students and managers do not consider the conservative level of the discretion used to determine the fair value when deciding whether to sell the security. This may have negative repercussions in organizations. For example, if less conservative discretion is used to determine the fair value of a security, and the fair value does not accurately indicate the underlying value of the security, then inappropriate selling decision could occur. This may potentially result in retaining an over-valued security that artificially inflates the financial statements when selling the security may be in the organization's best interest.

The results in this study indicate potential problems for firms. Student loans are considered Level 3 fair value assets and are traded as investments. Similar to mortgage-back securities, institutions purchase student loans as investments and firms are allowed to use discretion to adjust the average value of their investments. According to the Federal Reserve Bank of New York, delinquent student loans are 11.3% of the $1.16 trillion student debt on record (Shah 2015). Student loans are not expected to create another financial crisis because student loans consist of federal education loans and private alternative student loans. Prior to

2010, students' loans were made through banks. After 2010, government student loans issued through the Direct Loan program were made by the federal government (Federal Student Aid: An Office of the U.S. Department of Education, 2015). The amount of unsecuritized loans prior to 2010 is diminishing yet default is still possible. This can create fair value adjustments that result in biased financial statements. This occurs in illiquid markets when fair value accounting creates a downward bias because of the decrease that occurs from fair valuation adjustments from loan liabilities (AICPA 2003). Thus, when institutions use student loans in subsequent transactions, an increase in delinquency of the underlying investment will cause the fair value to decrease. The high default rates on student loans that are currently traded as Level 3 fair value securities between institutions creates a bias when the security is not re-valued to the appropriate amount. Thus, managers need to exercise caution not only when determining the fair value, but also when making selling decisions of these securities.

The second problem that can occur when student loans default, is that the fair valuation models for these investments will have higher uncertainty. This results in adjustments to the valuation model that contributes to an increase in volatility of the recognized fair value. This study finds that managers do not use past volatility to determine an asking price or to assess whether to sell the Level 3 fair value assets and liabilities. Therefore, managers need to be cautious of the potential implications volatility can cause.

Fair value accounting needs to be exercised in organizations with care. The professional community criticized fair value accounting as playing a role in the 2008 Credit Crises (Walker 2014). Many institutions relied on the last transaction price as a primary basis when determining fair value (AICPA: CAQ Auditing Library 2010). In addition, many firms had one-day gains immediately after the purchase from fair value adjustments (Walker 2014). From 2006 to 2008, the defaults on mortgages increased by 79%, (nearly 1.3 million properties) as a partial

consequence of inability to refinance at lower interest rates (Walker, 2014). This caused many firms to lose billions of dollars because of overvalued fair value assets and eventual extensive write-downs. Student loans issued by banks are decreasing, and are not as large as mortgage-backed securities. However, over-valuing these securities when the underlying value of the security is defaulted can result in negative implications for the investing firm especially when managers use the overvalued fair value amount (or less conservative discretion) to determine whether to sell and the asking price. By increased understanding of the consequences fair value assumptions have on manager selling decisions, organizations may be able to mitigate unintended consequences by implementing valuation policies.

This study also adds to the discussion whether graduate students are proper surrogates for professionals in research. Prior literature has found that graduate students may be used as surrogates when the task is deemed is not complex nor require integration of requisite knowledge (Elliott, Hodge, Kennedy, and Pronk 2007; Libby, Bloomfield, and Nelson 1995). Further, literature investigates how experience can create differences in judgements between graduate students and professional (e.g., Mortensen, Fisher, and Wines 2012; and Abdolmohammadi and Wright 1987). This study finds that in the fair value context, graduate students and professionals have similar asking prices when both more and less conservative discretion is used to determine the fair value. Though when uncertainty, volatility increases, the asking price between graduate students and professionals diverge. Thus, graduate students and professionals react to uncertainty differently. This may be attributed to the lack of fair accounting knowledge possessed by the graduate students. Mortensen et al. 2012 provide evidence that because of general domain knowledge similarities, accounting graduate students are valid surrogates for professionals. Yet, the graduate students indicated that only 4.80% have fair value experience, compared to the

entire professional sample possessing fair value accounting experience. This may account for the disparity between the groups.

This study is also subject to limitations. Participants were asked to read an investment scenario and make selling decisions. They had no positive or negative consequences from their selling choices. By including a compensation component in the study, respondents may react differently. For instance, by selling the fair value security at a higher value would result in a larger gain, which could increase the managers' compensation. Conversely, if the manager were to retain the security with the intention that the value will increase in the future, then financial ratios would remain constant and may affect compensation.

Case materials were developed with the solicited advice of valuation experts to be realistic. Nevertheless, the scenario is more simplified than what would occur in an actual commercial enterprise setting. Managers would have access to other information and perhaps expert advice. Another limitation is that on average, 75% of the respondents indicated that they would sell the security. Perhaps greater tension in the scenario may produce a greater desire to retain the securities. For instance, if financial ratios negatively affected by the selling choice, then participants may have decided not to sell. In addition, due to the short nature of this study, around ten minutes, participants would not feel as committed to the firm and the selling decision as they would if they faced this decision in their job.

Despite the limitations, this study provides insight on how discretion of Level 3 fair value assets and liabilities influences selling choices of these fair value securities. Future research could implement an economic experiment to examine the negotiation selling process. Studies could also examine how the option allowed by ASC 820 to value Level 3 securities at an aggregate or individual level impacts investing and reporting decisions. This study could also be

extended to include other factors that influence selling choices, such as firm characteristics or individual behavior traits.

REFERENCES

Abdolmohammadi, M., & Wright, A. (1987). An examination of the effects of experience and task complexity on auditor judgements. *The Accounting Review*, 62: 1-13.

Ahmed, A. S., Kilic, E., & Lobo, G. J. (2011). Effects of SFAS 133 on the risk relevance of accounting measures of banks' derivative exposure. *The Accounting Review*, 86: 769-804.

American Bankers Association (ABA). 2009. Comment Letter to the U.S. Treasury Secretary Timothy Geithner and Federal Reserve Chairman Ben Bernanke on the G-20 Accounting Recommendations. September 9. Available at: http://www.aba.com/aba/documents/news/G20Letter9909.pdf

American Institute of CPAs (AICPA): CAQ Auditing Library. (2010). Measurements of FV in Illiquid Markets. 1-6.

Arens, A. A., Elder, R. J., & Beasley, M. S. (2008). Auditing and Assurance Services: An Integrated Approach. Upper Saddle River, NJ: Prentice Hall.

ASC 820. (n.d.). Accounting Standards Codifications. Section 820 - 10- 20.

AU Section 540. (n.d.) Generally Accepted Auditing Standards.

Ashton, R. H., & Kramer, S. S. (1980). Students as surrogates in behavioral accounting research: Some evidence. *Journal of Accounting Research*, 18: 1-15.

Barberis, N., Shleifer, A., & Vishny, R. (1998). A model of investor sentiment. *Journal of Financial Economics*, 49: 307-343.

Baker, H. K., & Haslem, J. A. (1973). Information needs of individual investors. *The Journal of Accountancy*, 136: 64-69.

Ball, R., Kothari, S. P., & Robin, A. (2000). The effect of international institutional factors on properties of accounting earnings. *The Journal of Accounting & Economics*, 29: 1-51.

Barlev, B., & Haddad, J. R. (2003). Fair value accounting and the management of the firm. *Critical Perspectives on Accounting*, 14: 383-415.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Barth, M. (1994). Fair value accounting: Evidence from investment securities and the market valuation of banks. *The Accounting Review*, 69(1): 1-25.

Barth, M. E., Landsman, W. R., & Wahlen, J. M. (1995). Fair value accounting: Effects on banks' earnings volatility, regulatory capital, and value of contractual cash flows. *Journal of Banking & Finance*, 19: 577-605.

Barth, M., & Taylor, D. (2010). In defense of fair value: Weighing the evidence on earnings management and asset securitization. *Journal of Accounting and Economics*, 49: 26-33.

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting & Economics*, 24: 3-37.

Baucells, M., Weber, M., & Welfens, F. (2011). Reference-point formation and updating. *Management Science*, 57: 506-519.

Bazerman, M. H. (2006). Judgment in managerial decision making. Hoboken, NJ: Wiley.

Benston, G. J. (2006). Fair-value accounting: A cautionary tale from Enron. *Journal of Accounting and Public Policy*, 25: 465-484.

Benston, G. J. (2008). The shortcomings of fair-value accounting described in SFAS 157. *Journal of Accounting and Public Policy*, 27: 101-114.

Blankespoor, E., Linsmeier, T. J., Petroni, K. R., & Shakespear, C. (2013). Fair value accounting for financial instruments: Does it improve the association between bank leverage and credit risk? *The Accounting Review*, 88: 1143-1177.

Bourgeois, L. J. (1985). Perceived uncertainty, and economic performance in volatile environments. *Academy of Management Journal*, 28: 548-573.

Bosco, F. A., Aguinis, H., Singh, K., Field, J. G., & Pierce, C. A. (2015). Correlational effect size benchmarks. *Journal of Applied Psychology*, 100: 431-449.

Brink, A. G., Hobson, J. L, & Douglas, S. E. (2011). The effect of financial incentives on excessive risk-taking behavior: An experimental examination incorporating earnings management and individual factors. April 2012. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2046415.

Bromiley, P. (2009). A prospect theory model of resource allocation. *Decision Analysis*, 6: 124-138.

Bruin, J. 2006. newtest: command to compute new test. UCLA: Statistical Consulting Group. http://www.ats.ucla.edu/stat/stata/ado/analysis/.

Chartered Financial Analyst Institute Centre for Financial Market Integrity, The Centre for Audit Quality, the Consumer Federation of America, and the Council of Institutional Investors (CFA). 2008. Fair Value Supporters Urge SEC Not to Suspend Mark-to-Market Accounting Rule. Press release of letter to SEC, October 15. Available at: http://www.thecenterforauditquality.org/newsroom/pdfs/SECJointLetter2008-10-15.pdf.

Chen, W., Tan, H.-T., & Wang, E. Y. (2013) Fair value accounting and managers' hedging decisions. *Journal of Accounting Research*, 51(1): 67-103.

Cheng, Q. (2005). What determines residual income? *The Accounting Review*, 80: 85-112.

Cohen, J. (1992). A power primer. *Psychological bulletin,* 112: 155 – 159.

Cusworth, E. (2012, October 31). Investors continue to misunderstand valuation risk in Level 3 hedge fund assets. Retrieved February 15, 2014, from Risk Net: www.risk.net

Danbolt, J., & Rees, W. (2008). An experiment in fair value accounting: UK investment vehicles. *European Accounting Review*, 17(2): 271-303.

Dechow, P. M., & Shakespear, C. (2009). Do managers time securitization transactions to obtain accounting benefits? *The Accounting Review*, 84(1): 99-132.

Dechow, P. M., Myers, L. A., & Shakespear, C. (2010). Fair value accounting and gains from asset securitization: A convenient earnings management tool with compensation side-benefits. *Journal of Accounting and Economics*, 49: 2-25.

Dixit, A. K., & Pindyck, R. S. (1994). Investment Under Uncertainty. Princeton, NJ: Princeton University Press.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *The Academy of Management Review*, 14(1): 57-74.

Elliott, W. B., Hodge, F. D., Kennedy, J. J., & Pronk, M. (2007). Are M.B.A. students a good proxy for nonprofessional investors? *The Accounting Review*, 82: 139-168.

Federal Student Aid: An Office of the U.S. Department of Education. (2015). Interest Rates and Fees. Retrieved March 25, 2015, from Student Aid: https://studentaid.ed.gov/types/loans/interest-rates.

FASB Accounting Standards Codification. (2014). Glossary. Retrieved March 2014, from https://asc.fasb.org/advancedsearchresults.

Financial Accounting Standards Board (FASB). *Fair Value Measurements.* Statement of Financial Accounting Standards No. 157. Stanford CT: FASB 2010.

____. *Unobservable Input: Glossary.* ASC 820-10-20. Stanford, CT: FASB 2014.

Folpmers, M., & de Rijke, P. (2010). A mark-to-model approach to the valuation of residential mortgage backed securities. *Journal of Asset Management*, 11: 55-61.

Galanti, R. (2013, December 11). Regarding PCAOB Rulemaking Docket Matter No. 034. Retrieved May 8, 2014, from Costco's Report to the Public Company Accounting Oversight Board. : http://pcaobus.org/Rules/Rulemaking/Docket034/115b_Costco.pdf.

Gomely, T. A., Matsa, D. A., & Milbourn, T. (2013). CEO Compensation and corporate risk: Evidence from a natural experiment. *Journal of Accounting and Economics*, 56: 79-101.

Goodman, L. A. (1960). On the exact variance of products. *Journal of the American Statistical Association, 55*, 708-713.

Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate finance reporting. White paper, 1-72.

Hayes, A. F., (2015). Hacking PROCESS for bootstrap inference in moderation analysis. White paper, 1- 9.

Heath, C. (1995). Escalation and De-escalation of commitment in response to sunk cost: The role of budgeting in mental accounting. *Organizational Behavior and Human Decision Processes*, 62(1), 38-54.

Hilton, A. W., & O'Brien, P. C. (2009). Inco Ltd.: Market value, fair value, and management discretion. *Journal of Accounting Research*, 47: 179-211.

Hirst, E., Hopkins, P. E., & Wahlen, J. M. (2004). Fair values, income measurement, and bank analysts' risk and valuation judgments. *The Accounting Review*, 79: 453-472.

Hodder, L. D., Hopkins, P. E., & Wahlen, J. M. (2006). Risk-relevance for fair-value income measures for commercial banks. *The Accounting Review*, 81: 337-375.

Holt, C. A., & Laury, S. K. (2002). Risk aversion and incentive effects. *The American Economic Review*, 92: 1644-1655.

IFRS 13. (2012). IFRS 13.1.

IFRS. (n.d.). Fair Value Measurement. Retrieved March 5, 2014, from IFRS Foundation: http://www.ifrs.org/Current-Projects/IASB-Projects/Fair-Value-Measurement/Pages/Fair-Value-Measurement.aspx.

Isen, A. M., & Patrick, R. (1983). The effect of positive feelings on risk-taking: When the chips are down. *Organization Behavior and Human Performance*, 31: 194-202.

Jensen, E., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics*, 3: 305-360.

Kadous, K., Koonce, L., & Thayer, J. M. (2012). Do financial statement users judge relevance based on properties of reliability? *The Accounting Review*, 84: 1335-1356.

Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological Review*, 80(4): 273-251.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47: 263-291.

Kedia, S., & Philippon, T. (2009). The economics of fraudulent accounting. *Journal of Financial Regulation*, 22: 2169-2199.

Kerlinger, F. N., & Lee, H. B. (2000). Foundations of Behavioral Research. Orlando, Florida: Haracourt, Inc. (pages 801-802).

Kieso, D. E., Weygandt, J. J., & Warfield, T. D. (2013). Intermediate Accounting. Danvers, Ma: Wiley.

Kolev, K. (2009). Do investors perceive mark-to-model as marking-to-myth? Early evidence from FAS No. 157 disclosure. Working paper, New York University.

Koonce, L., Nelson, K. K., & Shakespeare, C. M. (2011). Judging the relevance of fair value for financial instruments. *The Accounting Review*, 86: 2075-2098.

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, 108: 480-498.

Leech, N. L., Barrett, K. C., & Morgan, G. A. (2011). IBM SPSS for Intermediate Statistics. Use and Interpretation. (4th ed.) New York, NY: Routledge.

Laux, C., & Leuz, C. (2009). The crisis of fair-value accounting: Making sense of the recent debate. *Accounting, Organizations, and Society*, 34(6-7): 826-834.

Libby, R., Bloomfield, R., & Nelson, M.W. (2002). Experimental research in financial accounting. *Accounting, Organizations, and Society*, 27: 775-810.

Lobo, G. J., & Zhou, J. (2006). Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial evidence. *Accounting Horizons*, 20: 57-73.

March, J. (1987). Ambiguity and accounting: The elusive link between information and decision making. *Accounting, Organizations and Society*, 12: 153-168.

March, J., & Shapira, Z. (1987). Managerial perspectives on risk and risk taking. *Management Science*, 33: 1404-1418.

Marks, R. W. (1951). The effect of probability, desirability, and 'privilege 'on the stated expectations of children. *Journal of Personality*, 19: 332-351.

Milbradt, K. (2012). Level 3 assets: Booking profits and concealing losses. *The Review of Financial Studies*, 25: 55-95.

Mishra, H., Mishra, A., Rixom, J., & Chatterjee, P. (2013). Influence of motivated reasoning on saving and spending decisions. *Organizational Behavior and Human Decision Processes*, 121: 13-23.

Mortensen, T., Fisher, R., Wines, G. (2012). Students as surrogates for practicing accountants: Further evidence. *Accounting Forum*, 36: 251-265.

Nelson, K. (1996). Fair value accounting for commercial banks: An empirical analysis of SFAS No. 107. *The Accounting Review*, 71: 161-182.

Nunnally, J. C. (1978). Psychometric theory (2nd ed.). New York: McGraw-Hill.

Odean, T. (1998). Are investors reluctant to realize their losses? *The Journal of Finance*, 53: 1775 - 1798.

Penman, S. (2007). Financial reporting quality: Is fair value a plus or minus? *Accounting and Business Research, Special issue: International Accounting Policy Forum*: 33-44.

Plantin, G., Sapara, H., & Shin, H. S. (2008). Marking-to-market: Panacea or Pandora's box? *Journal of Accounting Research*, 46: 435-460.

Preacher, K. J., & Leonardelli, G. J. (2010). *Calculation for the Soble Test: An Interactive Calculation Tool of Mediation Tests*. Retrieved 2015, from quantpsy.org: http://quantpsy.org/sobel/sobel.htm.

Preacher, Kristopher J., and Andrew F. Hayes (2004), "SPSS and SAS Procedures for Estimating Indirect Effects in Simple Mediation Models," *Behavior Research Methods, Instruments, & Computers*, 36: 717-731.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. Journal of Personality and Social Psychology, 67: 1063-1078.

Sitkin, S. B., & Pablo, A. L. (1992). Reconceptualizing the determinants of risk behavior. *Academy of Management*, 17: 9-38.

Slovic, P., Fischhoff, B., & Lichtenstein, S. (1977). Behavioral decision theory. *Annual Review of Psychology*, 28: 1-39.

Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), Sociological methodology 1982 (pp.290-312). San Francisco: Jossey-Bass.

Song, C. J., Thomas, W. B., & Yi, H. (2010). Value relevance of FAS No. 157 fair value hierarchy information and the impact of corporate governance. *The Accounting Review*, 85(4): 1375-1410.

Sullivan, K., & Kida, T. (1995). The effect of multiple reference points and prior gains and losses on managers' risky decision making. *Organizational Behavior and Human Decision Processes*, 64: 76-83.

Tybout, A., Sternthal, B. Keppel, G., Verducci, J., Meyers-Levy, J., Barnes, J., Maxwell, S., Allenby, G., & Steenkamp, J. (2001). Analysis of Variance. *Journal of Consumer Psychology,* 10 (1/2): 5-35.

Valencia, A. (2011). Opportunistic behavior using level 3 fair-values under SFAS 157. Working paper, Florida State University.

Walker, M. J. (2014). *Fair Value Accounting: An Overview.* Bozeman, MT: Western CPE.

Wang, K. J. (2010). Negotiating a fair value under accounting uncertainty: A laboratory experiment. *Behavioral Research in Accounting*, 22: 109-134.

Young, S. M. (1985). Participative budgeting: The effects of risk aversion and asymmetric information on budgetary slack. *Journal of Accounting Research*, 23: 829-842.

Zikmund, W. G. (2003). Business Research Methods (7th ed.). Mason, OH: Thomson/South-Western.

Zyla, L. M. (2013). Fair Value Measurement: Practical Guidance and Implementation. Hoboken, New Jersey: John Wiley & Sons, Inc.

APPENDIX A

Invitation to Participate in Study

Greetings,

We invite you to participate in a study that examines fair value accounting and decision-making. This survey will take less than 10 minutes and will help our understanding of fair value discretion and selling choices. We appreciate your honest and accurate response to each question.

All responses will be kept confidential and access to the data collected in this survey is limited to the two Virginia Commonwealth University project team members listed below. Your anonymity will be maintained during the data collection, analysis, and any publications or presentations of the results. No individual information will be collected that could link you to your responses.

Your participation is voluntary. If you decide to participate, you may stop at any time. You may also decide not to answer a particular question.

If you have any questions or concerns about this research, please feel free to contact Karen Green at greenky@vcu.edu, or Alisa Brink at agbrink@vcu.edu.

Please feel free to keep this form for future reference.

Thank you in advance for taking time to complete the survey.

Regards,

Karen Green, CPA
Doctoral Candidate
Virginia Commonwealth University

Alisa Brink, Ph.D.
Associate Professor of Accounting
Virginia Commonwealth University

This study has been reviewed and approved by Virginia Commonwealth University's Office of Research Subjects Projection. Study's IRB reference number: HM20002111.

If you have additional questions about your rights as a participant in this study, you may contact:
Office of Research Subjects Protection
Virginia Commonwealth University
800 East Leigh Street
PO Box 980568
Richmond, VA 23298
Telephone: 804-827-2157

You may also contact this number if you have general questions, concerns, or complaints about the research. Please call this number if you cannot reach the research team or wish to talk to someone else.

Treatment #1: Treatment Small CONS and Low VOL

You are a manager at Super Financial Services Inc. (SFS). SFS is a medium sized, publically traded firm in the banking industry. In addition, SFS is a mature firm that has shown consistent growth since its incorporation.

One of your duties as a manager includes investing in securities. On May 12, 2013, you invest in a pool of available-for-sale securities for $10,000,000, which is considered a substantial investment. These securities are classified as Level 3 securities because there are *neither exact nor similar* securities traded on the market. Therefore, when SFS makes fair value adjustments to these securities on their accounting records, they do not have guidance from the market. According to US GAAP, this means that SFS can use **discretion to obtain the fair value** of these Level 3 securities on their financial statements.

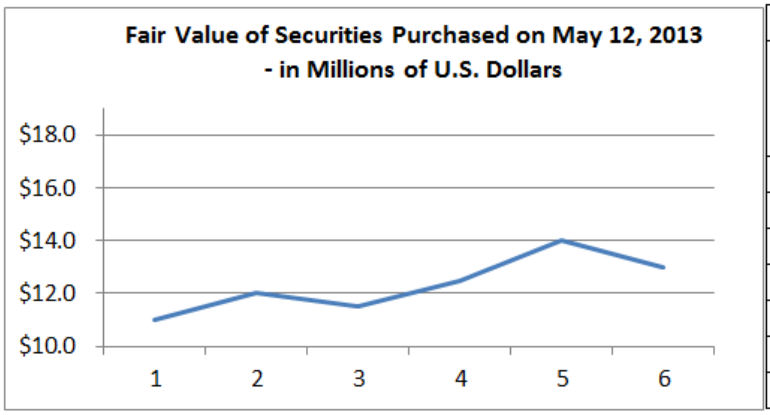
The accounting process for available-for-sale securities require gains /losses from fair value adjustments to be recorded as unrealized gains / losses in *Other Comprehensive Income*. When selling these securities cash received will increase by the selling price and the security at the amortized cost is removed from the balance sheet. The difference is a realized gain / loss that is recognized in the *Income Statement*. The unrealized gains /losses and the fair value adjustment accounts are modified at year-end.

When determining the fair value of Level 3 securities, following SFS' policy, management uses the allowed discretion to value these securities **conservatively (low**) rather than non-conservatively (high). This selection is consistent with the discretion permitted by US GAAP in determining fair values for these securities. In addition, SFS uses an expert to determine that the discretion used to arrive at the fair value is valid.

Over a year has passed since you purchased the Level 3 securities for $10,000,000 on May 12, 2013. Because SFS uses **conservative (low)** assumptions to value these securities, these assets have **a fair value of $13,000,000** on the balance sheet.

Due to the inputs received from the valuation expert and the company policies, the fair value recognized for all Level 3 securities historically has **low volatility**. Low volatility will cause the fair value of the Level 3 assets to be relatively stable over time. Thus, the history indicates that the market value changes are **stable** and if this pattern continues it may be **roughly the same** in the future.

The table below illustrates the fair value and the unrealized gains / losses of the Level 3 securities you purchased on May 12, 2013 over the past 6 quarters to the most recent valuation of $13,000,000.



Fair Value and Unrealized Gains / Losses		
Quarter	Fair value	Unrealized Gain/Loss
1	$ 11.0	$1.0
2	$ 12.0	$1.0
3	$ 11.5	($0.5)
4	$ 12.5	$1.0
5	$ 14.0	$1.5
6	$ 13.0	($1.0)
Total unrealized gains		$ 3.0

Treatment #2: Treatment Small Cons and High VOL

You are a manager at Super Financial Services Inc. (SFS). SFS is a medium sized, publically traded firm in the banking industry. In addition, SFS is a mature firm that has shown consistent growth since its incorporation.

One of your duties as a manager includes investing in securities. On May 12, 2013, you invest in a pool of available-for-sale securities for $10,000,000, which is considered a substantial investment. These securities are classified as Level 3 securities because there are *neither exact nor similar* securities traded on the market. Therefore, when SFS makes fair value adjustments to these securities on their accounting records, they do not have guidance from the market. According to US GAAP, this means that SFS can **use discretion to obtain the fair value** of these Level 3 securities on their financial statements.

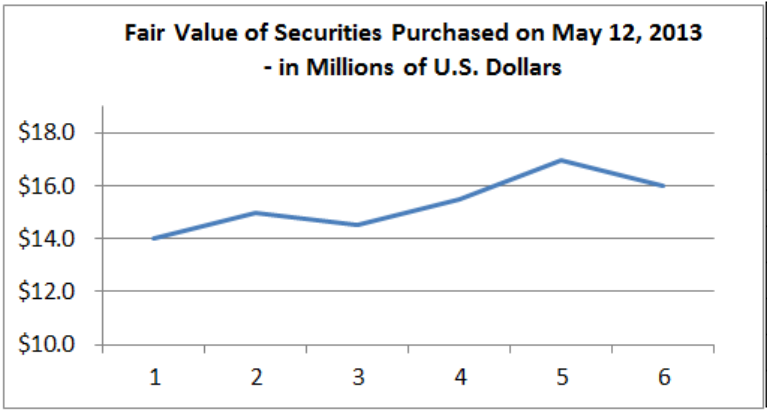
The accounting process for available-for-sale securities require gains /losses from fair value adjustments to be recorded as unrealized gains / losses in *Other Comprehensive Income*. When selling these securities cash received will increase by the selling price and the security at the amortized cost is removed from the balance sheet. The difference is a realized gain / loss that is recognized in the *Income Statement*. The unrealized gains /losses and the fair value adjustment accounts are modified at year-end.

When determining the fair value of Level 3 securities, following SFS' policy, management uses the allowed discretion to value these securities **non-conservatively (high**) rather than conservatively (low). This selection is consistent with the discretion permitted by US GAAP in determining fair values for these securities. In addition, SFS uses an expert to determine that the discretion used to arrive at the fair value is valid.

Over a year has passed since you purchased the Level 3 securities for $10,000,000 on May 12, 2013. Because SFS uses **non-conservative (high)** assumptions to value these securities, these assets have **a fair value of $16,000,000** on the balance sheet.

Due to the inputs received from the valuation expert and the company policies, the fair value recognized for all Level 3 securities historically has **low volatility**. Low volatility will cause the fair value of the Level 3 assets to be relatively stable over time. Thus, the history indicates that the market value changes are **stable** and if this pattern continues it may be **roughly the same** in the future.

The table below illustrates the fair value and the unrealized gains / losses of the Level 3 securities you purchased on May 12, 2013 over the past 6 quarters to the most recent valuation of $16,000,000.



Fair Value and Unrealized Gains / Losses		
Quarter	Fair value	Unrealized Gain/Loss
1	$ 14.0	$4.0
2	$ 15.0	$1.0
3	$ 14.5	($0.5)
4	$ 15.5	$1.0
5	$ 17.0	$1.5
6	$ 16.0	($1.0)
Total unrealized gains		$ 6.0

SFS is now considering investing in a venture that requires a large amount of cash. You are examining the numerous investments you made for SFS to determine whether you can contribute to the project. You have a few options. One of your options is to sell the securities you purchased on May 12, 2013. Alternatively, you can sell other investments you made on behalf of SFS.

Treatment #3: Treatment Large CONS and High VOL

SFS is now considering investing in a venture that requires a large amount of cash. You are examining the numerous investments you made for SFS to determine whether you can contribute to the project. You have a few options. One of your options is to sell the securities you purchased on May 12, 2013. Alternatively, you can sell other investments you made on behalf of SFS.

You are a manager at Super Financial Services Inc. (SFS). SFS is a medium sized, publically traded firm in the banking industry. In addition, SFS is a mature firm that has shown consistent growth since its incorporation.

One of your duties as a manager includes investing in securities. On May 12, 2013, you invest in a pool of available-for-sale securities for $10,000,000, which is considered a substantial investment. These securities are classified as Level 3 securities because there are *neither exact nor similar* securities traded on the market. Therefore, when SFS makes fair value adjustments to these securities on their accounting records, they do not have guidance from the market. According to US GAAP, this means that SFS can **use discretion to obtain the fair value** of these Level 3 securities on their financial statements.

The accounting process for available-for-sale securities require gains /losses from fair value adjustments to be recorded as unrealized gains / losses in *Other Comprehensive Income*. When selling these securities cash received will increase by the selling price and the security at the amortized cost is removed from the balance sheet. The difference is a realized gain / loss that is recognized in the *Income Statement*. The unrealized gains /losses and the fair value adjustment accounts are modified at year-end.

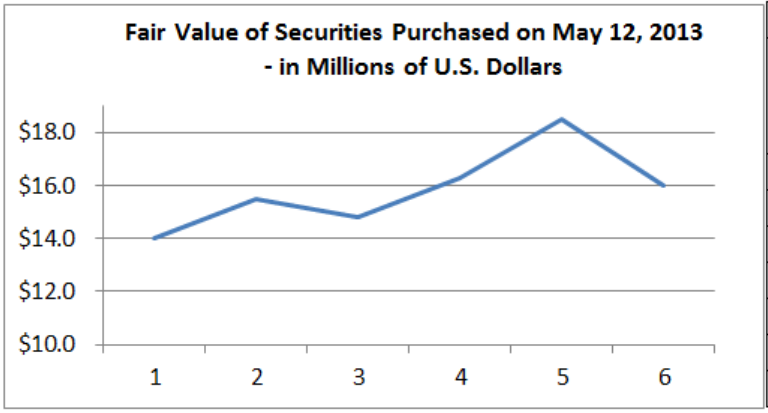
When determining the fair value of Level 3 securities, following SFS' policy, management uses the allowed discretion to value these securities **non-conservatively (high)** rather than conservatively (low).

This selection is consistent with the discretion permitted by US GAAP in determining fair values for these securities. In addition, SFS uses an expert to determine that the discretion used to arrive at the fair value is valid.

Over a year has passed since you purchased the Level 3 securities for $10,000,000 on May 12, 2013. Because SFS uses **non-conservative (high)** assumptions to value these securities, these assets have **a fair value of $16,000,000** on the balance sheet.

Due to the inputs received from the valuation expert and the company policies, the fair value recognized for all Level 3 securities historically has **high volatility**. High volatility will cause the fair value of the Level 3 assets to be fluctuate over time. Thus, the history indicates that the market value changes are **frequent** and if this pattern continues it may be **considerably different** in the future.

The table below illustrates the fair value and the unrealized gains / losses of the Level 3 securities you purchased on May 12, 2013 over the past 6 quarters to the most recent valuation of $16,000,000.



Fair Value and Unrealized Gains / Losses		
Quarter	Fair value	Unrealized Gain/Loss
1	$ 14.0	$4.0
2	$ 15.5	$1.5
3	$ 14.8	($0.7)
4	$ 16.3	$1.5
5	$ 18.5	$2.2
6	$ 16.0	($2.5)
Total unrealized gains		$ 6.0

SFS is now considering investing in a venture that requires a large amount of cash. You are examining the numerous investments you made for SFS to determine whether you can contribute to the project. You have a few options. One of your options is to sell the securities you purchased on May 12, 2013. Alternatively, you can sell other investments you made on behalf of SFS.

Treatment #4: Treatment Small CONS and High VOL

You are a manager at Super Financial Services Inc. (SFS). SFS is a medium sized, publically traded firm in the banking industry. In addition, SFS is a mature firm that has shown consistent growth since its incorporation.

One of your duties as a manager includes investing in securities. On May 12, 2013, you invest in a pool of available-for-sale securities for $10,000,000, which is considered a substantial investment. These securities are classified as Level 3 securities because there are *neither exact nor similar* securities traded on the market. Therefore, when SFS makes fair value adjustments to these securities on their accounting records, they do not have guidance from the market. According to US GAAP, this means that SFS can use discretion to obtain the fair value of these Level 3 securities on their financial statements.

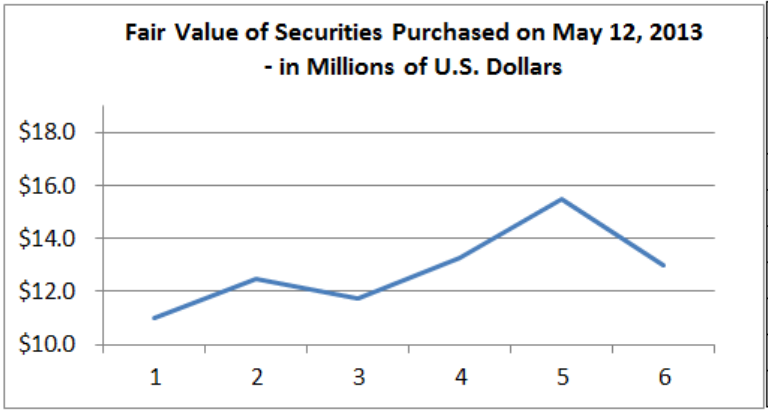
The accounting process for available-for-sale securities require gains /losses from fair value adjustments to be recorded as unrealized gains / losses in *Other Comprehensive Income*. When selling these securities cash received will increase by the selling price and the security at the amortized cost is removed from the balance sheet. The difference is a realized gain / loss that is recognized in the *Income Statement*. The unrealized gains /losses and the fair value adjustment accounts are modified at year-end.

When determining the fair value of Level 3 securities, following SFS' policy, management uses the allowed discretion to value these securities **conservatively (low**) rather than non-conservatively (high). This selection is consistent with the discretion permitted by US GAAP in determining fair values for these securities. In addition, SFS uses an expert to determine that the discretion used to arrive at the fair value is valid.

Over a year has passed since you purchased the Level 3 securities for $10,000,000 on May 12, 2013. Because SFS uses **conservative (low)** assumptions to value these securities, these assets have **a fair value of $13,000,000** on the balance sheet.

Due to the inputs received from the valuation expert and the company policies, the fair value recognized for all Level 3 securities historically has **high volatility**. High volatility will cause the fair value of the Level 3 assets to be relatively fluctuate over time. Thus, the history indicates that the market value changes are **frequent** and if this pattern continues it may be **considerably different** in the future.

The table below illustrates the fair value and the unrealized gains / losses of the Level 3 securities you purchased on May 12, 2013 over the past 6 quarters to the most recent valuation of $13,000,000.



Fair Value and Unrealized Gains / Losses		
Quarter	Fair value	Unrealized Gain/Loss
1	$ 11.0	$1.0
2	$ 12.5	$1.5
3	$ 11.8	($0.7)
4	$ 13.3	$1.5
5	$ 15.5	$2.2
6	$ 13.0	($2.5)
Total unrealized gains		$ 3.0

SFS is now considering investing in a venture that requires a large amount of cash. You are examining the numerous investments you made for SFS to determine whether you can contribute to the project. You have a few options. One of your options is to sell the securities you purchased on May 12, 2013. Alternatively, you can sell other investments you made on behalf of SFS.

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1. SFS requires the fair value for Level 3 securities to be: (check one)

____ conservative (low)

____ non-conservative (high)

2. According to the case, the resulting volatility for fair value Level 3 securities is: (check one)

_____ low volatility

_____ high volatility

3. What is the likelihood that you will sell the pool of securities? (Please circle percentage value)

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

No Likelihood (Definitely would **not** sell)

Moderate Likelihood

High Likelihood (Definitely **would** sell)

4. If you were to sell the pool of securities you purchased on May 12, 2013, what would be your asking price? (Please circle a value. Values are listed in millions of U.S. Dollars.)

9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5	17	17.5	18

5. If you were to sell the pool of securities you purchased on May 12, 2013, what would be the lowest price you will accept? (Please circle a value. Values are listed in millions of U.S. Dollars.)

9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5	17	17.5	18

6. If the market offers you $12,000,000, a price below the currently recognized fair value of $13,000,000, what is the likelihood that you would accept the offer? (Please circle one percentage value)

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

No Likelihood (Definitely would **not** sell)

Moderate Likelihood

High Likelihood (Definitely **would** sell)

Please rate the importance each statement influenced your selling decisions above:

		Not important at all	Low importance	Slightly important	Neutral	Moderately important	Very important	Extremely important
7.	Conservative fair value estimate selection.							
8.	SFS' record of low [high] volatility for Level 3 securities							
9.	Historical cost of $10,000,000							
10.	Current fair value of $13,000,000 [$16,000,000]							
11.	Gains / Losses are not recognized on the income statement until sold							
12.	The highest PAST fair value of the security							

You purchase a $2 lottery ticket. Assume that you must choose between two payouts. If you choose Option A, there is a chance that you will receive $2.00 and chance you will receive $1.60. However, if you choose Option B, you will play a lottery where there is a chance you will receive $3.85 and a chance you will receive $0.10.

For **each** choice below, indicate whether you would pick Option A or Option B:

			Which Option would you pick? Check one box for each Choice.	
	Option A: **Lottery**	**Option B:** **Lottery**	**Option A**	**Option B**
Choice 1	10% chance of $2.00, 90% chance of $1.60	10% chance of $3.85; 90% chance of $0.10		
Choice 2	20% chance of $2.00, 80% chance of $1.60	20% chance of $3.85; 80% chance of $0.10		
Choice 3	30% chance of $2.00, 70% chance of $1.60	30% chance of $3.85; 70% chance of $0.10		
Choice 4	40% chance of $2.00, 60% chance of $1.60	40% chance of $3.85; 60% chance of $0.10		
Choice 5	50% chance of $2.00, 50% chance of $1.60	50% chance of $3.85; 50% chance of $0.10		
Choice 6	60% chance of $2.00, 40% chance of $1.60	60% chance of $3.85; 40% chance of $0.10		
Choice 7	70% chance of $2.00, 30% chance of $1.60	70% chance of $3.85; 30% chance of $0.10		
Choice 8	80% chance of $2.00, 20% chance of $1.60	80% chance of $3.85; 20% chance of $0.10		
Choice 9	90% chance of $2.00, 10% chance of $1.60	90% chance of $3.85; 10% chance of $0.10		
Choice 10	100% chance of $2.00, 0% chance of $1.60	100% chance of $3.85; 0% chance of $0.10		

Please rate your agreement with each of the following statements:

		Completely disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Completely agree
1.	In uncertain times, I usually expect the best.					
2.	It's easy for me to relax.					
3.	If something can go wrong for me, it will.					
4.	I'm always optimistic about my future.					
5.	I enjoy my friends a lot.					
6.	It's important for me to keep busy.					
7.	I hardly ever expect things to go my way.					
8.	I don't get upset too easily.					
9.	I rarely count on good things happening to me.					
10.	Overall, I expect more good things to happen to me than bad.					

Do you have any work-related experience with fair value accounting: _____Yes _____ No

If so, please indicate the number of years:_____

Have you received any training related to fair value accounting? _____Yes _____ No

Current job title:_____

Number of years of professional experience:_____

Please indicate the approximate annual revenue of the firm that you work at (please check one):

_____ under $1 million _____$1-$10 million _____$10-$100 million

_____$100-$500 million _____$500 million - $1 billion _____over $1 billion

What is your age:_____ What is your gender? _____ Female _____ Male

Thank you for your participation!

APPENDIX B

Gender as Covariate Output

Asking price and lowest price willing to accept Multivariate Analysis of Variance (MANOVA)

Multivariate					Univariate	
Effect	**Wilks' λ**	**df**	**F-value**	**Sig.**	**ASK**	**LOW**
Model	.741	4	2.75	0.008	4.54 ***	1.81
CONS	.890	1	4.16	0.020	8.42 ***	3.74*
VOL	.951	1	1.72	0.187	2.57	.06
CONS *VOL	.912	1	3.24	0.045	6.17 **	1.10
GENDER	.964	1	1.26	0.291	.02	1.38

Selling Likelihood (SELL) Analysis of Variance (ANOVA)

Source	Sum of Squares	df	Mean Square	F-statistic	Two-Tailed p-value
CONS	718.992	1	718.992	1.11	.296
VOL	755.865	1	755.865	1.17	.287
CONS*VOL	267.128	1	267.128	.41	.523
GENDER	744.939	1	744.937	.15	.281
Error	43996.172	68	647.003		

Likelihood to Accept an Offer Lower than the Most Recognized Fair Value (LO_FV) Analysis of Variance (ANOVA)

Source	Sum of Squares	df	Mean Square	F-statistic	Two-Tailed p-value
CONS	12790.653	1	12790.653	15.16	$\leq$.01
VOL	1020.450	1	1020.450	1.21	.275
CONS *VOL	59.999	1	59.999	.07	.791
GENDER	872.168	1	872.168	1.03	.313

Vita

Karen Yvonne Green, daughter of Linda and Robert Green, was born in Wayne County, Michigan. She graduated from Trenton High School, in Trenton, Michigan in 1996. In 2008, Karen received her Associates in Accounting from Henry Ford Community College. She obtained a Bachelor of Business Administration in Accounting in 2009 and a Master of Science in Accounting 2010 from the University of Michigan Dearborn. She became a certified public accountant (CPA) in Massachusetts in 2012. During her graduate studies, Karen was recognized as the J. Michael Cook Doctoral Consortium Fellow and was a scholarship recipient from the Virginia Society of CPAs Education Foundation.